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A Taxonomic Revision of the South American Species of *Hypolepis* (Dennstaedtiaceae), Part II

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This is a continuation of "A Taxonomic Revision of the South American Species of *Hypolepis* (Dennstaedtiaceae), Part I." American Fern Journal 105(4).

16. *Hypolepis parallelogramma* (Kunze) C. Presl, Tent. Pterid.: 162. 1836. *Cheilanthes parallelogramma* Kunze, Linnaea 9: 85. 1834. LECTOTYPE (designated here).—PERU. [Huánuco]: In sylvis montium fl. Peruv. altiorum densioribus ad Pampayaco, July 1829, E. Poeppig s.n. (W! [as "ad Cuchero, Aug. 1829"]; probable isolectotypes: K!-on 2 sheets ["*Dicksonia erosa* Kunze, Peruvia, 1830"], LE!-frag. ["*Poeppig 220*"], PRC!-frag. ["Kunze dedit 1835"]). **Figs. 19A-D, 20A.**

Cheilanthes radula Kunze ex Hook. & Baker, Syn. Fil.: 130. 1867, *nom. nud.*

Cheilanthes scabra H. Karst. ex Hook. & Baker, Syn. Fil.: 130. 1867, *nom. nud.*

Plants terrestrial. *Rhizomes* 3–6 mm diam.; *hairs* catenate-acicular, yellowish-brown, 1–2 mm long, 7–15-celled. *Fronde* determinate, scandent, (2–) 3–8 m long; *petioles* (0.6–)1–2 m x 4.5–6 mm, dark brown proximally, light brown to stramineous above, glabrous, non-rugose, the *aculei* conspicuous, straight, 0.2–0.6 mm long; *laminae* oblong, tripinnate to tripinnate-pinnatifid proximally, (1.25–)2–6 x (0.5–)1–2 m; *rachises* straight, entirely light brown to stramineous, aculeate, non-rugose, abaxially with scattered *trichomidia*, hyaline with reddish cross-walls, laterally appressed, 0.2–0.5 mm long, 5–12-celled, adaxially with *trichomidia* and sparse catenate-acicular *hairs*, hyaline with reddish cross-walls, 0.3–0.5(–0.7) mm long, 5–7(–10)-celled; *basal pinnae* (25–)50–100 x (12–)25–45 cm, equilateral; *costae* abaxially with *trichomidia* and scattered *hairs*, adaxially with *hairs*; *costules* abaxially with *trichomidia*, adaxially glabrous; *veins* abaxially glabrous or with scattered *trichomidia*, adaxially glabrous; *laminar tissue between the veins* glabrous abaxially and adaxially; *lamina margins* glabrous; *sori* marginal; *pseudoinduisia* stramineous, the *margins* smooth to crenate, glabrous.

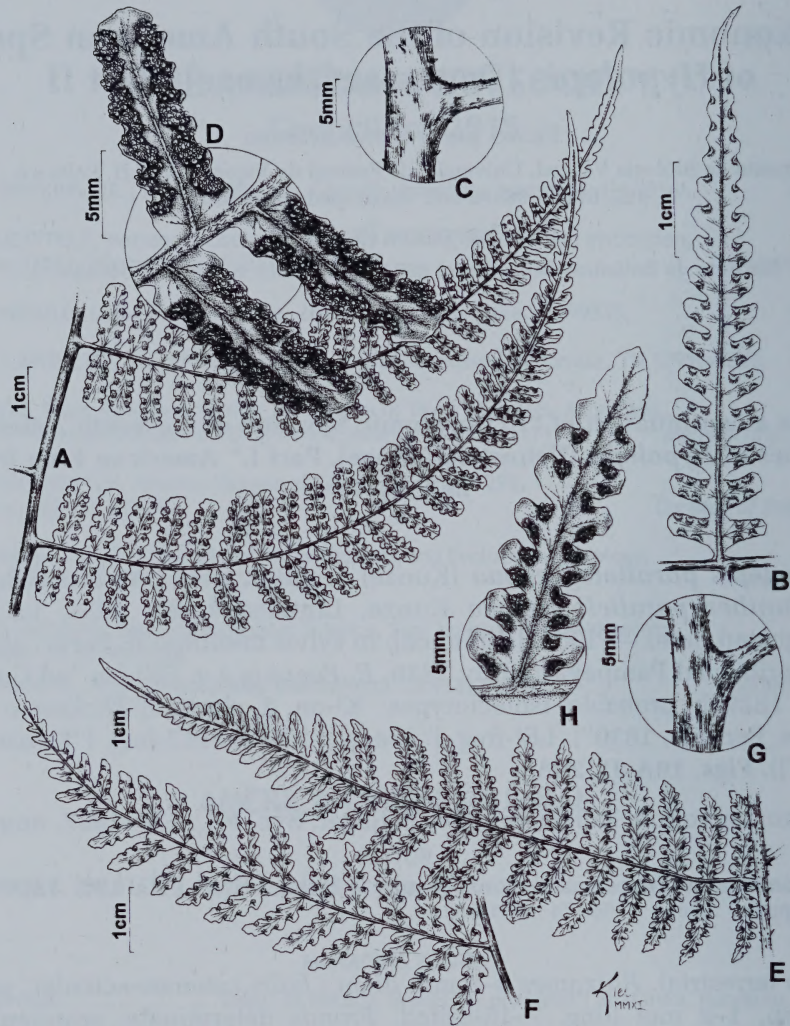


FIG. 19. A–D. *Hypolepis parallelogramma*. A. Proximal pinnules (Rodríguez 5090). B. Distal pinnule, abaxially (Rodríguez 5090). C. Intersection of petiole, rachis, and pinna-rachis, showing aculei (Kessler 11462). D. Secondary pinnules, abaxially, showing sori (Rodríguez 5090). E–H. *Hypolepis scandens*. E. Pinnule (Jiménez 1604). F. Pinnule (Kessler 9068). G. Intersection of petiole, rachis, and pinna-rachis, showing aculei. H. Fertile secondary pinnule, abaxially, showing sori (Jiménez 1604).

Distribution and ecology.—Venezuela, Colombia, Ecuador, Peru, and Bolivia, in the sub-Andean/Amazon forested regions; from (850–) 1100 to 2700 m. Tryon and Stolze (1989) also cited it for 550 m.

Specimens examined.—VENEZUELA. **Aragua:** Coloniae Tovar, Sep 1847, J.W.K. Moritz 388 (BR, K-on 3 sheets, K-3 sheets, W-3 sheets). **Distrito Capital:** Prov. Caracas, 4000 ft, Feb 1846, N. Funck & L.J. Schlim 492 (BM, BR-on 2 sheets, G-on 2 sheets, L, LE, W-2 sheets). **Yaracuy:** Sierra de Aroa, 10°21'N,

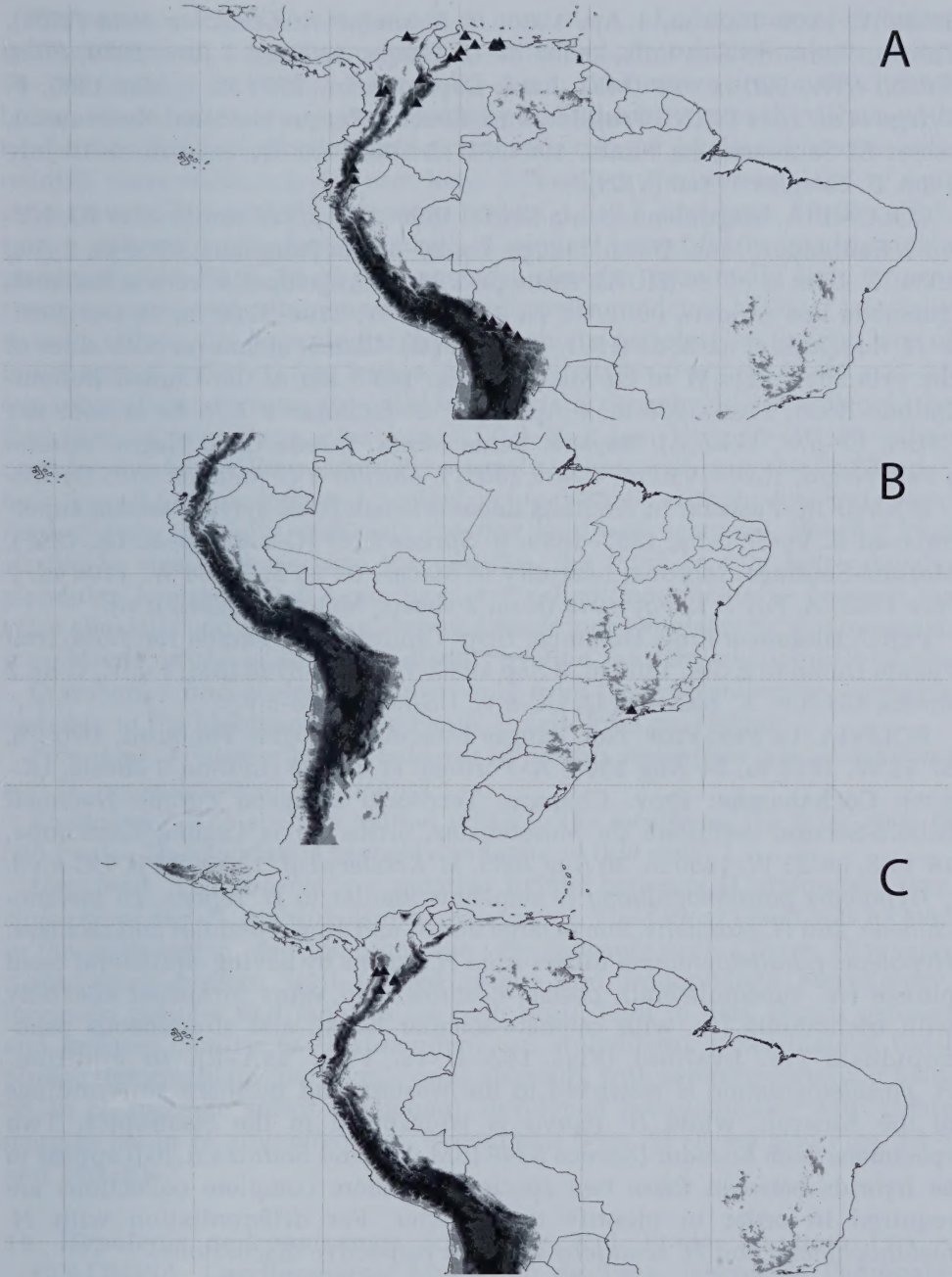


FIG. 20. A. Distribution of *Hypolepis parallelogramma*. B. Distribution of *Hypolepis* × *paulistana*. C. Distribution of *Hypolepis pedropaloensis*.

68°49'W, 1100–1500 m, 4 Apr 1980, *R. Liesner & A. González 9988* (VEN). **Falcón:** Sierra de San Luis, arriba de La Chapa, 1200 m, 1 June 1979, *Flora Falcón (HW, TR) n. 700* (MY). **Lara:** Dept. Morán, 1500 m, 6 Mar 1983, *F. Ortega et al. 1631* (VEN). **Trujillo:** Mun. Boconó, Parque Nacional Guaramacal, sector El Santuario, La Punta, 1009381 N, 19358403 W, 1860 m, 9–16 July 1998, *B. Stergios 17460* (VEN).

COLOMBIA. **Magdalena:** Santa Marta, 1898–1901, *H.H. Smith 2217* (G, NY-n.v.). **Santander:** Mun. Bucaramanga, km 29–30 vía Pamplona, 2700 m, 2 Aug 1984, *G. Díaz et al. 45* (HUA). **Antioquia:** Mun. Angelópolis, vereda Romeral, Quebrada Los Animas, 06°09'29"N, 75°42'05"W, 2100–2200 m, 29 Oct 2005, *W.D. Rodríguez et al. 5562* (HUA-on 3 sheets). **Chocó:** at and on both sides of the principal ridge W of La Mansa, at ca. 105.5 km of the Ciudad Bolívar-Quibdo Road, 2100–2200 m, 4 Apr 1971, *D. Lellinger & E.R. de la Sota 921* (HUA, LP-n.v., US-n.v.). **Boyacá:** Santa María, vereda Cano Negro, camino a Palo Negro, 1520–1930 m, 4 Nov 2003, *J. Murillo & C. Méndez 3395* (HUA).

ECUADOR. **Pastaza:** In Andibus Ecuadoriensibus, in sylvis Pastasie superioris, ad fl. Verde ostia, 1857–1859, *R. Spruce 5287* (G-3 sheets, K, LE, OXF). **Morona-Santiago:** Morona, near city of Macas, 02°20'S, 78°08'W, 1100 m, 7 Nov 1993, *A. Fay & L. Fay 4049* (K-on 2 sheets, MO-n.v., QCNE-n.v.).

PERU. **Huánuco:** Prov. Huanuco, Distr. Churubamba, Pampa Hermosa, trail Puente Duran to Exito, 1500 m, 8 Sep 1936, *Y. Mexia 8149* (BM, F-n.v., G-on 2 sheets, GH-n.v., K, MO-n.v., U, UC-n.v., US-n.v., USM-n.v.).

BOLIVIA. **La Paz:** Prov. Nor Yungas Estación Biológica Tunquini, 16°11'S, 67°52'W, 1710 m, 24 Aug 1998, *A. Portugal et al. 285* (LPB-on 3 sheets, UC-n.v.). **Cochabamba:** Prov. Chapare, Territorio Indígena Parque Nacional Isiboro-Secure, cordillera de Mosestetenez, arriba de la Laguna Carachupa, 16°14'S, 66°25'W, 1350 m, 30 Aug 2003, *M. Kessler et al. 13054* (LPB, UC-n.v.).

Hypolepis parallelogramma is somehow similar to *H. repens*, *H. melanochlaena*, and *H. scandens*, due to large fronds and armed petioles and rachises. *Hypolepis parallelogramma* differs from *H. repens* by having equilateral basal pinnae (vs. subequilateral), costae, costules, and veins furnished abaxially with trichomidia (vs. with catenate-acicular hairs), and stramineous pseudoindusia (vs. hyaline) (Figs. 19A–D vs. Figs. 15A–E). In addition, *H. parallelogramma* is restricted to the western and northern surroundings of the Amazon, while *H. repens* is widespread in the Neotropics. Two specimens from Ecuador (*Spruce 5349* [BM, W], and *Sodiros s.n.* [G]) appear to be hybrids between these two species, but more complete collections are required in order to identify them better. For differentiation with *H. melanochlaena* and *H. scandens* see their respective discussions.

17. *Hypolepis* × *paulistana* Schwartsb. & J. Prado, *hybr. nov.* TYPE.—BRAZIL.

São Paulo: Pindamonhangaba, estrada para o Pico do Itapeva, 22°46'05"S, 45°32'17"W, 1881 m, 23 Jan 2010, *P.B. Schwartsburd, J. Prado, G. Yatschievych & E. Schuettpelez 2298* (holotype: SP!; isotypes: DUKE!, LP!-frag., MO!, RB!, VIC!). **Figs. 9F–I, 20B.**

Plants terrestrial. *Rhizomes* 1.5–3 mm diam.; *hairs* catenate-acicular, yellowish-brown, 1.5–2.5 mm long, 12–25-celled. *Fronde*s determinate, erect, 50–100 cm long; *petioles* 25–60 cm x 2.5–3 mm, dark brown proximally, lighter brown above, inermous, rugose, abaxially and adaxially sparsely villous with two kinds of hairs, the *first kind of hair* catenate-acicular, hyaline or hyaline with reddish cross-walls, 0.2–0.4 mm long, 2–6-celled, the *second kind of hair* catenate-acicular, entirely yellowish-brown, 1.5–2.5 mm long, 12–25-celled, sparse and caducous; *laminae* ovate, tripinnate-pinnatifid to quadripinnate proximally, 35–50 x 35–50 cm; *rachises* straight, proximally light brown, stramineous above, inermous, rugose, abaxially moderate villous, adaxially densely villous, the *hairs* similar to those from the petioles, but the *first kind of hair* longer, 0.3–0.6(–1) mm long, 4–8(–15)-celled; *basal pinnae* 18–27 x 12–18 cm, subequilateral; *costae* abaxially and adaxially densely villous, with only the *first kind of hair*, these even longer, (0.8–)1–2 mm long, (8–)10–20-celled; *costules* abaxially villous, adaxially sparsely villous with only the *first kind of hair*, these 0.5–1 mm long, 6–12-celled; *veins* abaxially with the *first* and a *third kind of hair*, adaxially with only the *first kind* very scattered, the *first kind* similar in size to those from the costules, the *third kind of hair* catenate-glandular, hyaline, 0.2–0.3 mm long, 4–6-celled; *laminar tissue between the veins* abaxially and adaxially glabrous; *lamina margins* glabrous; *sori* marginal; *pseudoindusia* proximally green, distally hyaline, the *margins* copiously ciliate.

Distribution and ecology.—Known only from the type collection; probably endemic to the highlands of São Paulo, Brazil; from ca. 1900 m.

Parentage.—Putative hybrid between *Hypolepis stolonifera* (var. *stolonifera*) and *H. rugosula* (subsp. *pradoana*).

Etymology.—The specific epithet refers to the locality of the type: state of São Paulo. This species is probably endemic to this state.

Hypolepis × *paulistana* is a putative hybrid between *H. stolonifera* (var. *stolonifera*) and *H. rugosula* (subsp. *pradoana*). The former taxon was located in the same region, and the other one very probably occurs there. *Hypolepis* × *paulistana* present well formed spores and intermediate morphology: inermous petioles and rachises (as both taxa), light to dark brown petioles and rachises (similar to *H. stolonifera* var. *stolonifera*), subequilateral basal pinnae (intermediate condition), veins abaxially with catenate-glandular hairs (as in *H. rugosula* subsp. *pradoana*), developed pseudoindusia with ciliate margins (as in *H. stolonifera* var. *stolonifera*) (Figs. 9F–I; see also Figs. 5A–I and 24A–E).

- 18. *Hypolepis pedropaloensis*** Schwartsb. & J. Prado, *sp. nov.* TYPE.—COLOMBIA. **Cundinamarca:** Municipio de Tena, laguna de Pedropalo, bosque al lado S, 2060 m, 9 June 1967, R. Jaramillo Mejía, T. van der Hammen & G. Lozano C. 2665 (holotype: K!-on 2 sheets; isotype: COL?). **Figs. 20C, 21A–D.**

Plants terrestrial. *Rhizomes* not seen. *Fronde*s determinate, erect to decumbent, ca. 0.8(–?) m long; *petioles* ca. 32(–?) cm x ca. 5.5 mm, dark brown

proximally, lighter brown above, tuberculate, rugose, abaxially sparsely hirsute to glabrescent, adaxially hirsute, the *hairs* (*first kind*) acicular, hyaline, erect, 0.2–0.5 mm long, 3–6-celled; *laminae* rhombic to ovate, tripinnate-pinnatifid to quadripinnate proximally, ca. 60(?) x 60–110 cm; *rachises* straight, light brown, tuberculate, rugose, abaxially and adaxially hirsute with three kinds of hair, the *first kind of hair* similar to those from the petioles, conspicuous, the *second kind of hair* catenate-acicular, hyaline with reddish cross-walls or entirely yellowish, 1.5–2 mm long, 15–20-celled, sparse, the *third kind of hair* catenate-glandular, hyaline with reddish cross-walls or entirely yellowish 0.4–1 mm long, 6–12-celled, sparse; *basal pinnae* 30–55 x 20–25 cm, inequilateral; *costae* abaxially and adaxially hirsute with *the three kinds of hair*; *costule* abaxially hirsute with the *three kinds of hair*, adaxially with only the *second kind of hair*, but these shorter, 0.5–1 mm long, 4–10-celled, entirely hyaline; *veins* with the same indument pattern that of the costules, but the hairs even shorter; *laminar tissue between the veins* abaxially hirsute with only the *first kind of hair*, adaxially glabrous; *lamina margins* glabrous; *sori* marginal; *pseudoindusia* entirely blackish green, adaxially hirsute, the *margins* ciliate.

Distribution and ecology.—Endemic to the Cordilleras of Colombia (Antioquia, Cundinamarca, and Tolima); from 1900 to 2900 m.

Specimens examined.—COLOMBIA. **Antioquia**: Mun. Jardín, Vereda Quebrada Bonita, 05°32'30.4"N, 75°48'27.1"W, 2870 m, 12 Jan "2036" [2006?], *W.D. Rodríguez et al.* 5026 (HUA-on 3 sheets); 10 km al Este de Sonsón, ca. 2700 m, 18 Mar 1949, *R. Scolnik et al.* 19 An 240 (CORD). **Cundinamarca**: Albán, Vereda Las Marías, 04°52'N, 74°26'W, 1900–2100 m, 24 Feb 2003, *L.A. Triana-M.* 133 (HUA). [**Tolima?**]: S. Antonio, 2400 m, s.d., *A. Lindig* 359 (B, K).

Etymology.—The specific epithet is a reference for the locality of the type collection: 'Laguna de Pedropalo'.

This species is similar to *Hypolepis stuebelii*, which also occurs in Colombia but apparently only in the eastern region (in Magdalena, Santander, Valle del Cauca, and Nariño), to *H. acantha*, which is endemic to eastern Brazil, and to *H. grandis* Lellinger from Costa Rica. These four species present hirsute laminar axes and laminar tissue between the veins, abaxially — the hairs are acicular, erect, ca. 0.1–0.4 mm long. They also present ciliate pseudoindusia. *Hypolepis pedropaloensis* differs from those species by tuberculate petioles and rachises (*vs.* aculeate), the laminae drying blackish green (*vs.* drying olive green), and blackish green pseudoindusia with adaxial hairs (*vs.* hyaline pseudoindusia, without adaxial hairs) (Figs. 21A–D *vs.* Figs. 6A–C, 21E–H).

19. *Hypolepis poeppigii* (Kunze) R.A. Rodr., *Gayana Bot.* 46 (3,4): 202. 1989. *Polypodium poeppigii* Kunze, *Linnaea* 9: 50. 1834. *Phegopteris poeppigii* (Kunze) Fée ex Gay, *Fl. Chil.* (Gay) 6: 506. 1854. *Hypolepis rugosula* (Labill.) J. Sm. var. *poeppigii* (Kunze) C. Chr., *Monogr. Dryopteris* 2: 127. 1920 [Jan–Sep 1920]. *Hypolepis rugosula* (Labill.) J. Sm. var. *poeppigii* (Kunze) C. Chr. & Skottsb. in Skottsb., *Pterid.* Juan Fernandez: 31. 1920 [Oct 1920], reprinted

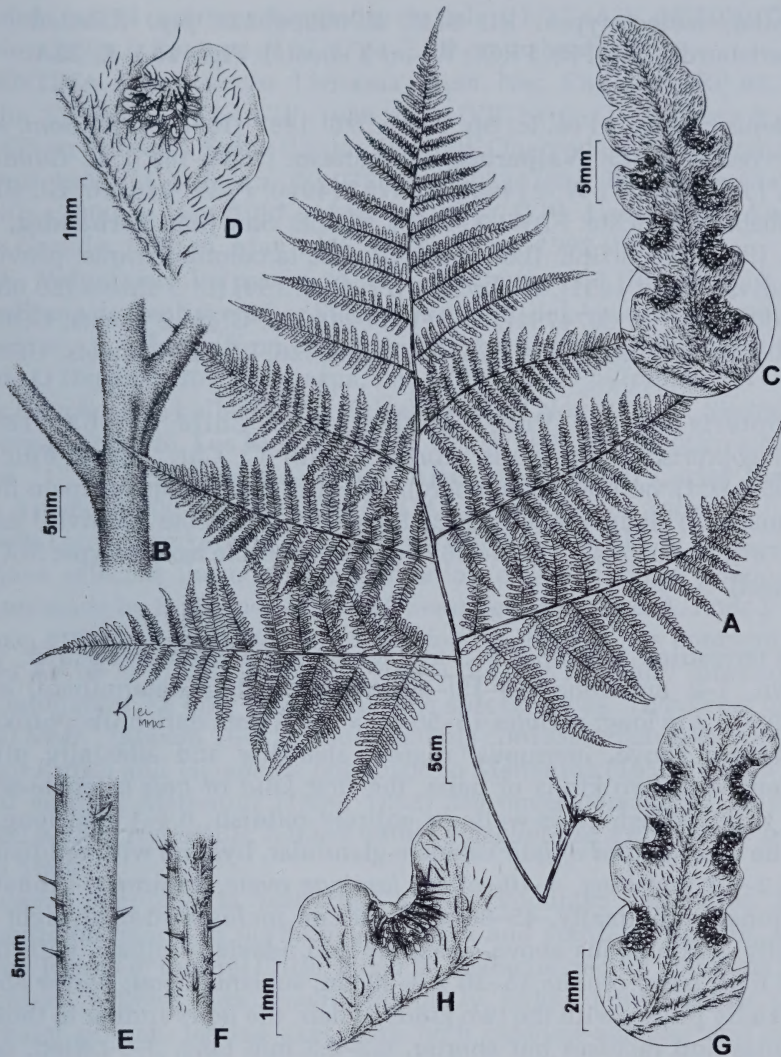


FIG. 21. A–D *Hypolepis pedropaloensis* (Rodríguez 5026). A. Habit. B. Intersection of petiole, rachis, and pinna-rachises, showing hirsute axes. C. Secondary pinnule, abaxially. D. Fertile segment, abaxially, showing detail of sorus and pseudoindusium. E–H *Hypolepis stuebelii*. E. Rachis, showing hirsute axis and aculei (*de Tussac s.n.*). F. Rachis, showing aculei (*Ortega 1640*). G. Secondary pinnule, abaxially (*Ortega 1640*). H. Fertile segment, abaxially, showing detail of sorus and pseudoindusium (*Ortega 1640*).

in Nat. Hist. Juan Fernandez and Eastern Island 2(Bot.): 31. 1920, *nom. illeg.* [non *Hypolepis rugosula* (Labill.) J. Sm. var. *poeppigii* (Kunze) C. Chr. (Jan–Sep 1920)]. *Hypolepis poeppigii* (Kunze) Mett. ex Maxon in Moldenke, Lilloa 6: 289.1941, as “Kuntze”, *comb. inval.* LECTOTYPE (designated here).—CHILE. In turfosis paludosis littoris oceani pacifici prope Concon, Aug 1827 [–1829?], *E. Poeppig, diar. 182, Col. pl. Chil. I. n. 264* (G! [ex Herb. de

Candolle]; isolectotypes: B!, BM!, K!-000640327 *p.p.* [labeled "A" by Schwartsburd], LE!, PR!, PRC!, W!-on 2 sheets). **Figs. 13A–E, 22A.**

Hypolepis chilensis Fée, Ic. Sp. Nouv.: 76. 1857 [1858?] *p.p.*, *nom. superfl.*
 SYNTYPES.—CHILE. **Valparaíso:** Valparaíso, [1834–1835], *C. Gaudichaud s.n.* [31?] (BR!, FI-W!-214906, FI-W!-214910, FI-W!-216216, G!, RB!, W!; probable duplicate: FI-W!-214917). CHILE. **San Juan Fernandez,** *C. Gay s.n.* (P?, PC?). CHILE. **[Los Ríos]:** près de la colonie Arique, province de Valdivia, [May 1851], *W. Lechler [Pl. Chil. 194]* (B!-3 sheets [20 0074789, 20 0074790, 20 0074791], FI!, FI-W!-214914, G!-on 2 sheets, GOET-*n.v.*, K!-000640324, K!-000640325, K!-000640326, L!, LE!-2 sheets, UPS!, W!).

Phegopteris sturmii Phil., Anales Univ. Chile 94: 58. 1896, as "*Phegopteris?*". *Dryopteris sturmii* (Phil.) C. Chr., Index Filic.: 295. 1905. LECTOTYPE (designated here).—CHILE. **[Los Ríos]:** ad ripam fluminis Pilmaiquen haud procul a lacu Puyehue provinciae Valdivia, Jan 1877 [1878?], *D. Cueto s.n.* (SGO-0469, image!; probable isolectotype: SGO-0470, image!).

Plants terrestrial. *Rhizomes* 2–3 mm diam.; *hairs* catenate-acicular, yellowish-brown, 1–2 mm long, 10–15(–20)-celled. *Fronds* determinate, erect to arched, 0.6–1.2 m long; *petioles* 15–50 cm x 3–4.5 mm, dark brown proximally, lighter brown above, inermous, rugose, abaxially and adaxially pilose to glabrescent with two kinds of hairs, the *first kind of hair* catenate-acicular, hyaline with reddish cross-walls or entirely reddish, 0.4–1 mm long, 4–10-celled, the *second kind of hair* catenate-glandular, hyaline with reddish cross-walls, 0.2–0.7 mm long, 4–10-celled; *laminae* ovate, tripinnate-pinnatifid to quadripinnate proximally, 45–80 x 30–60 cm; *rachises* straight, light brown proximally, stramineous above, abaxially and adaxially pilose, with the two kinds of hair; *basal pinnae* 15–30 x 9–20 cm, subequilateral; *costae* abaxially and adaxially pilose, with the two kinds of hair, the *hairs* similar to those from the petioles and rachises but shorter, 0.2–0.5 mm long, 3–5-celled; *costules* abaxially and adaxially with the two kinds of hairs similar to costae; *veins* glabrous abaxially and adaxially; *laminar tissue between the veins* abaxially glabrous, adaxially with the *first kind of hair*, sparse; *lamina margins* essentially glabrous, sometimes with the *first kind of hair* restricted to the soral region; *sori* submarginal; *pseudoindusia* absent, sometimes the lamina margins revolute and protecting the sori, but not differentiated into a thinner flap.

Distribution and ecology.—Southern Bolivia, northern Argentina, and central Chile; from 100 to 500 m (in Chile), and from 1450 to 2800 m (in Argentina and Bolivia).

Specimens examined.—BOLIVIA. **Chuquisaca:** Azurduy, Angostura, ca. 18 km Azurduy, camino hacia Pomabanbillo, 20°08.57'S, 64°19.29'W, 2666 m, 10 Jan 2004, *H. Huaylla & I. Guachalla 635* (HSB-*n.v.*, K). **Tarija:** Prov. Cercado,

San Andrés, por el camino a San Pedro de Sola, 21°37'46"S, 64°50'40"W, 1990 m, 17 Nov 2007, *I. Jiménez et al.* 4724 (LPB-on 3 sheets).

ARGENTINA. **Jujuy:** Depto. Ledesma, Pque. Nac. Calilegua, RP 83, Bosque del Cielo, 23°40.1'S, 64°54.0'W, 1688 m, 04/VII/2010, *O. Martínez & J. Prado* 1897B (SP-on 3 sheets). **Salta:** [Depto. Capital], Quebrada de San Lorenzo, 1460 m, 17 Apr 1908, *M. Lillo s.n.* (SI-072574, U-0256183). **Tucumán:** Clavillo de Aconquija, 2800 m, Jan 1937, *M.M. Job* 1394 (LP). **Catamarca:** Andalgalá, Esquina Grande, 2400 m, May 1915, *P. Jörgensen* 1502 (SI).

CHILE. **Valparaíso:** Valparaiso, 1832, *H. Cuming* 635 (BM, K-on 2 sheets). **Metropolitana de Santiago:** Near Suintevo, at Salto del Agua, near Santiago, Mar 1821, *Gillies s.n.* [*N. ??*] (K-on 2 sheets, OXF-on 2 sheets). **Libertador General Bernardo O'Higgins:** Prov. Colchagua, s.d., [*R.A. or F.?*] *Philippi s.n.* (W-2 sheets). **Bío-Bío:** Concepción, kullar bakom Talcahuano, 22 Nov 1916, *C. Skottsberg & I. Skottsberg* 1123 (UPS). **Los Ríos:** Valdivia, 15 Feb 1904, *O. Buchtien s.n.* (FI-p.p. [labelled "1" by Schwartsburd, 2010]). **Aisén del General Carlos Ibañez del Campo:** Aysen, ca. 100 m, 6 Feb 1938, *C.H. Andreas* 521 (L-on 3 sheets, U). **Region Unknown:** Locality unknown, *C.A. de Chamisso s.n.* (LE, PRC).

We have selected the correct combination of *Polypodium poeppigii* into *Hypolepis* made by Rodriguez (1989: *H. poeppigii* (Kunze) R.A. Rodr.), and not by Maxon (1941: *H. poeppigii* (Kunze) Mett. ex Maxon), as commonly cited (see also Arana *et al.* 2014). Maxon (1941) did not have any intention to do such combination; he only identified some specimens as "*Hypolepis poeppigii* (Kuntze) Mett." (Maxon 1941), clearly making confusion between *Polypodium poeppigii* Kunze and *Hypolepis poeppigiana* Mettenius (1856), which are two different entities. Mettenius (1856, 1858) has never considered *Polypodium poeppigii* within *Hypolepis*, but yet within *Phegopteris*: *Phegopteris poeppigii* (Kunze) Mett.

Hypolepis poeppigii is restricted to the Tucumán vegetation (Bosque Tucumano-Boliviano), in northern Argentina and southern Bolivia, and also in the wet forests of Central Chile. It can be characterized by inermous petioles and rachises, petioles dark brown proximally, lighter brown above, subequilateral basal pinnae, lamina axes with both catenate-acicular and catenate-glandular hairs, glabrous veins, laminar tissue between the veins abaxially glabrous, submarginal sori, and absence of pseudoindusia (Figs. 13A–E). Some authors have confused *Hypolepis poeppigii* with *H. rugosula* and *H. rugosula* subsp. *poeppigiana* (see discussion of the later; see also Arana *et al.* 2014; Schwartsburd & Prado 2014), and with *H. repens*. *Hypolepis poeppigii* differs from *H. repens* by laminae furnished with both catenate-acicular and catenate-glandular hairs (*vs.* only catenate-acicular hairs), inermous petioles and rachises (*vs.* armed), laminar tissue between the veins adaxially with catenate-acicular hairs (*vs.* glabrous), lamina margins commonly with catenate-acicular hairs on the soral region (*vs.* glabrous), submarginal sori (*vs.* marginal), and absence of pseudoindusia (*vs.* developed, hyaline pseudoindusia) (Figs. 13A–E *vs.* Figs. 15A–E). *Hypolepis repens* does not occur in Argentina nor in Chile (see also Fig. 22C).

20. *Hypolepis pteroides* Mett. in Hohenackeri, Fil. Lechler. 1: 17, t. 3, Figs. 7–13. 1856. LECTOTYPE (first step designated by Tryon 1964: 36; second step designated here).—PERU, St. Gavan in summis jugis Cordillera, July 1854, W. Lechler, *Pl. Peruvian. 2152* (B!-20 0074829 *p.p.* [ex Herb. Mettenius]; isolectotypes: B!-frag. [20 0074829 *p.p.*; ex Herb. Mus. Bot. Berolinense], G!-2 sheets, GOET-*n.v.*, K!-000640331, K!-000640332, L!-908286223, L!-908286228, LE!-2 sheets, US!-frag., W!). **Figs. 18G, 22B.**

Plants terrestrial or from rock crevices. *Rhizomes* 1.5–2.5 mm diam.; *hairs* catenate-acicular, yellowish-brown, 1–2 mm long, 15–20-celled, commonly caducous. *Fronds* determinate, erect, 60–100 cm long; *petioles* 20–35 cm x 2.5–5.5 mm, dark reddish-brown, inermous, rugose, glabrescent; *laminae* ovate, tripinnate-pinnatifid proximally, 40–50 x 20–35 cm; *rachises* straight, dark reddish-brown proximally, lighter above, abaxially and adaxially sparsely lanose, the *hairs* catenate-acicular, lax, hyaline, hyaline with reddish cross-walls, or entirely reddish, 1–2(–3) mm long, 15–25(–35)-celled; *basal pinnae* 15–20 x 5–12 cm, subequilateral; *costae* lanose abaxially and adaxially; *costules* lanose abaxially, adaxially glabrescent; *veins* lanose abaxially, adaxially glabrescent; *laminar tissue between the veins* glabrous abaxially and adaxially; *lamina margins* glabrous; *sori* marginal, frequently confluent; *pseudoindusia* proximally greenish, distally hyaline, the *margins* crenate, glabrous.

Distribution and ecology.—Andes of Colombia, Ecuador and Peru; from 3400 to 4200 m.

Specimens examined.—COLOMBIA. **Tolima:** [Villahermosa], Páramo de Ruiz [Nevado del Ruiz], 3400 m, 11 Sep 1883, F.C. Lehmann “XVII” (G).

ECUADOR. **Department Unknown:** Locality unknown, s.d., J. Verleysen 201 (U).

This species is endemic to the highest places in the Andes of Colombia, Ecuador and Peru, and there are only a few specimens available of it. Tryon (1964) and Tryon and Stolze (1989) considered it a synonym of *Hypolepis obtusata*, but there are some consistent differences between the two species (see discussion of *H. obtusata*). *Hypolepis pteroides* is easily recognized by the medium sized (60–100 x 20–35 cm) determinate fronds, tripinnate-pinnatifid laminae, and lanose lamina axes, furnished with long lax hairs (1–2(–3) mm long, 15–25(–35)-celled) (Fig. 18G).

21. *Hypolepis repens* (L.) C. Presl, Tent. Pterid.: 162. 1836. *Lonchitis repens* L., Sp. Pl. 2: 1078. 1753. *Cheilanthes repens* (L.) Kaulf., Enum. Filic.: 215. 1824. LECTOTYPE (designated by Underwood 1906: 192).—C. Plumier, *Traité Foug. Amér.*: t. 12! 1705. EPITYPE (designated by Cremers and Aupic 2008: 24).—MARTINIQUE, [1695?], C. Plumier *s.n.*, ex Herb. Tournefort. 5228 (P-TRF-00322132, image!). **Figs. 4A–C, 15A–E, 22C.**

Dicksonia aculeata Spreng., Neue Entd. 3: 7. 1822. *Cheilanthes aculeata* (Spreng.) Kaulf., Flora 6(1): 367. 1823. *Hypolepis aculeata* (Spreng.) J. Sm.,

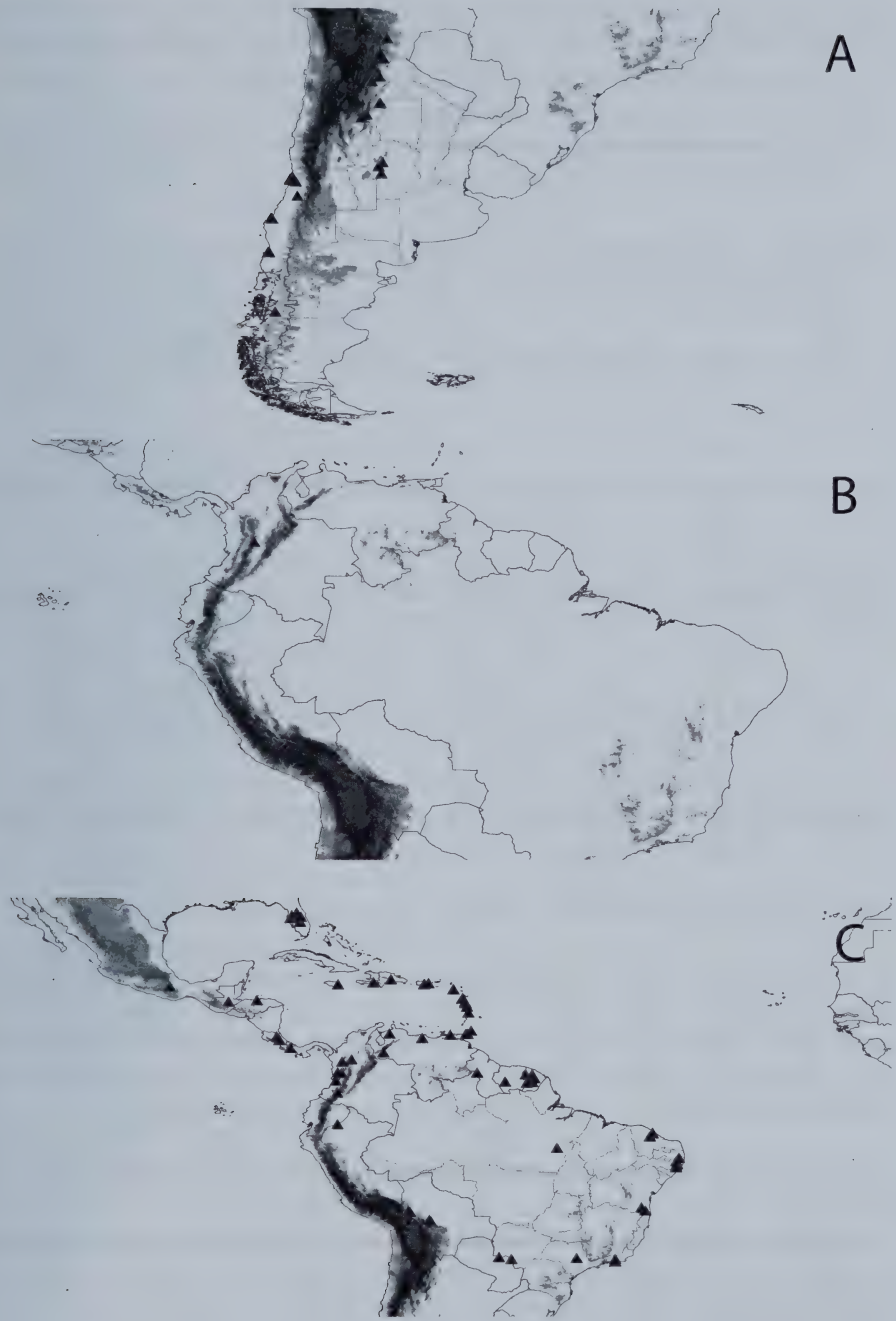


FIG. 22. A. Distribution of *Hypolepis poeppigii*. B. Distribution of *Hypolepis pteroides*. C. Distribution of *Hypolepis repens*.

J. Bot. (Hooker) 4: 157. 1842. LECTOTYPE (designated here).—MARTINIQUE. June 1822 [1819–1821?], *F. Kohaut s.n.*, *Sieber Fl. Martin. no. 373* (PRC!—on 2 sheets [ex Herb. Presl; “*Hypolepis repens* Presl, *Lonchitis repens* Lin., *Dicksonia aculeata* Spr.”]); isolectotypes: BM!, BR!, FI-W!, G!, K!—2 sheets, L!—2 sheets, LE!—4 sheets, PR!—2 sheets, PRC! [ex Herb. Univ. Prag.], PRC!—2 sheets [ex Herb. Presl]; probable isolectotypes: LE!, PRC! [“*Sikorn 836*”].

Hypolepis delicatula Fée, Hist. Foug. Ant.: 28, t. 21, Fig. 1. 1866. *Hypolepis dicksonioides* Fée, Crypt. Vasc. Brésil 1: 53. 1869, *nom. nov.* for *Hypolepis delicatula* Fée (1866), *nom. superfl. et illeg.* [non *Hypolepis dicksonioides* (Endl.) Hook. (1852)]. LECTOTYPE (re-designated here).—GUADELOUPE. 1864, *F.J. L’Herminier s.n.* (RB!—120407; isolectotype: G!—on 2 sheets).

Plants terrestrial. *Rhizomes* 3.5–5 mm diam.; *hairs* catenate-acicular, yellowish-brown, (1–)2–3 mm long, 15–20-celled. *Fronde*s determinate, arched or scandent, 1.5–3 m long; *petioles* 50–100 cm x 4–10 mm, dark brown proximally, lighter brown above, rugose, the *aculei* straight, 0.3–2.5 mm long, commonly with a hair at the tip, glabrescent, the *hairs* catenate-acicular, hyaline or hyaline with reddish cross-walls, 0.3–0.6(–0.8) mm long, 4–8(–10)-celled, the *trichomidia* 0.2–0.3 mm long, 4–6-celled; *laminae* ovate, tripinnate-pinnatifid to quadripinnate proximally, 1.3–2 x 1–1.4 m; *rachises* straight, stramineous to light brown, abaxially with *trichomidia*, adaxially with *hairs* and *trichomidia*, aculeate, non-rugose; *basal pinnae* 50–70 x 20–55 cm, subequilateral; *costae* pilose abaxially and adaxially, the *hairs* similar to those from the petioles and rachises; *costules* pilose abaxially and adaxially; *veins* sparsely pilose to glabrescent abaxially, glabrous adaxially; *lamina tissue between the veins* glabrous abaxially and adaxially; *lamina margins* glabrous; *sori* marginal; *pseudoindusia* entirely hyaline, the *margins* smooth or slightly crenate, glabrous.

Distribution and ecology.—USA (Florida), Jamaica, Hispaniola, Puerto Rico, Saint Christopher, Guadeloupe, Dominica, Martinique, Saint Lucia, Trinidad & Tobago, Mexico, Guatemala, Honduras, Costa Rica, Panama, Colombia, Venezuela, Guyana, Suriname, French Guiana, Brazil (Pará, Ceará, Pernambuco, Alagoas, Rio de Janeiro, and São Paulo), Ecuador, Bolivia, and Paraguay; from 50 to 1800 m.

Specimens examined.—UNITED STATES OF AMERICA. **Florida**: Osceola County, hammock, SW corner of County, 13 Mar 1969, *G.R. Cooley et al. 12635* (LE).

JAMAICA. **Department Unknown**: Locality unknown, 1874–1879, *G.S. Jenman s.n.* (OXF 00072103).

HISPANIOLA. **Haiti**: Massif de la Selle, Port-au-Prince, Morne Malanga, 1200 m, 27 Jan 1926, *E.L. Ekman, Pl. Ind. Occid. H 5444* (K, S-n.v.). **Santo Domingo**: Cordillera Central, prov. de la Vega, near Piedra Blanca, ca. 200 m, 12 Feb 1929, *E.L. Ekman, Pl. Ind. Occid. H 11541* (K, S-n.v.).

PUERTO RICO. **Department Unknown**: Aybonito, ad La Lima, 28 Oct 1885, *P. Sintenis, Pl. Portoricenses 2058* (NY-n.v., PR, PRC).

SAINT CHRISTOPHER [SAINT KITTS]. "Moly new Estate", 8 Sep–5 Oct 1901, *N.L. Britton & J.F. Cowell 320* (K).

GUADELOUPE. Forêt domaniale de la Basse-Terre, Trace Victor-Hugue, en partant de Matouba, 7 Sep 1981, *S. Barrier 2971* (U).

DOMINICA. In silvis ad Grande Bay, Nov 1881, *B. Eggers, Fl. Exs. Ind. Occid. 551* (LE, W).

MARTINIQUE. Mont Parnaise, Nov 1867, *L. Hahn 61* (FI, K).

SAINT LUCIA. Locality unknown, [July 1887?], *J. Gray 16* (K).

TRINIDAD & TOBAGO. **Tobago**: Locality unknown, 21 Sep 1910, *W.E. Broadway 3882* (K-2 sheets). **Trinidad**: Blanchisseuse Road, near 10 mile post, 2 Jan 1925, *W.E. Broadway 5512* (FI-PS, PR).

MEXICO. **Oaxaca**: Mount Cuicatlan, 16–22 June 1898, *V. González & C. Conzatti 737* (K).

GUATEMALA. **Alta Verapaz**: Cubilquitz, 350 m, Jan 1902, *H. von Tuerckheim 8346* (K, LE).

HONDURAS. Middlesex, 200 ft, 19 July 1929, *W.A. Schipp 258* (G, K-on 2 sheets).

COSTA RICA. **Heredia**: Parque Nal. Braulio Carrillo, Estación Magsasay, Sarapiquí, 10°24'18"N, 84°03'30"W, 200 m, 23 June 1990, *D. Acevedo 84* (CR-*n.v.*, K-2 sheets). **Cartago**: Tucurrique, Las Vueltas, 600–700 m, Dec 1898, *A. Tonduz 12870* (G-on 2 sheets, G-2 sheets, LE, W).

PANAMA. Chiriquí, s.d., *J.H. Hart C 252* (K).

COLOMBIA. **Antioquia**: Mun. Anorí, Vereda Madre Seca, 07°01'00.2"N, 75°03'00.0"W, 610 m, 22 Jan 2004, *W.D. Rodríguez et al. 4549* (HUA-on 3 sheets). **Chocó**: Río Salto, 9 km W of Andagoya, 75–100 m, 23 Feb 1971, *D.B. Lellinger & E.R. de la Sota 439* (LP, US-*n.v.*). "El Valle" [Valle del Cauca?]: Cordoba, Dagua Valley, 80–100 m, 8 May 1922, *E.P. Killip 5040* (GH-*n.v.*, K, NY-*n.v.*, PH-*n.v.*). **Cauca**: La Vega, 1800 m, Dec 1860, *A. Lindig 328* (BM, K). **Arauca**: Sarare Santa Librada, 1300–1600 m, 24–25 Mar 1959, *H. Bischler 1972* (BM, FI-PS, G-on 2 sheets).

VENEZUELA. **Falcón**: Sierra de San Luis, arriba de Santa Maria, 1300 m, 26 July 1979, *'Flora Falcón' (HW, BV) 921* (U-on 3 sheets). **Miranda**: Alpes del Tuy, 500 m, 27 Nov 1956, *L. Bernardi 5863* (G). **Sucre**: límite distritos Arismendi/Bermúdez/Benítez, Península de Paria, 10°38'N, 63°10'W, 750–1000 m, 1 Sep 2002, *W. Meier & P. Molina 9223* (B-*n.v.*, G, PORT-*n.v.*, UC-*n.v.*, VEN-*n.v.*).

GUYANA. **Potaro-Siparuni**: Pakaraima Mts., Mt. Wokomung, Suruwabaru Creek, E side river line slopes 1–2 km from juncture Yuarba, 05°02'N, 59°54'W, 750–800 m, 9 Nov 1993, *T.W. Henkel et al. 4219* (CAY, US-*n.v.*).

SURINAME. **Sipaliwini**: In montibus, qui dicuntur Emmaketen, loodrecht op Zuidlijn, ca. 800 m, 23 Sep 1959, *A.G.H. Daniëls & F.P. Jonker 1253* (U-on 2 sheets).

FRANCE, FRENCH GUIANA. **Saint-Laurent-du-Maroni**: Secteur Elysée, Région de Paul-Isnard, Collines et criques situées à l'ouest de la vallée de la crique Elysée et de la piste allant d'Elysée à Emmanuel, à 9.5 km à l'WNW de Citron, à 80 km au sud de St-Laurent-du Maroni, St. MB 973-72, 04°45'N,

54°02'W, 100 m, 16 July 1999, *M. Boudrie 3210* (CAY-on 5 sheets). **Cayenne:** Montagnes de la Trinité, zone sud, Bassin de la Mana, 04°34'N, 53°21'W, 100 m, 18 Jan 1998, *J.J. de Granville & F. Crozier 13681* (B-n.v., CAY-on 3 sheets, K-on 2 sheets, NY-n.v., P-n.v., U, US-n.v.).

BRAZIL. Pará: Serra dos Carajás, AMZA camp AZUL, 06°06'S, 50°17'W, 500–550 m, 31 May 1982, *C.R. Sperling et al. 5912* (HUEFS, INPA-n.v., MG-n.v., NY-n.v.). **Ceará:** Maranguape, Serra de Maranguape, Serra da Pedra Rajada, 03°54'05"S, 38°43'12"W, 900 m, 10 Apr 2011, *P.B. Schwartzburd & J.A.P. Araújo 2510* (LP, SP, VIC). **Pernambuco:** Jaqueira, Usina Colônia, RPPN Frei Caneca, Mata do Córrego do Guariba, 08°43'00"S, 35°50'20"W, 650 m, 15 Mar 2011, *P.B. Schwartzburd et al. 2335* (SP, UFP, VIC). **Alagoas:** Ibatiguara, Usina Serra Grande, Engenho Coimbra, Grota do Dudé, 09°00'03.0"S, 35°51'14.2"W, 390–415 m, 9 Feb 2001, *M.R. Pietrobom-Silva & A.C.P. Santiago 4847* (HB, NY-n.v., UFP). **Bahia:** Camacan, Fazenda Serra Bonita, 9.7 km W de Camacan, na estrada para Jacarecí, daí 6 km SW na estrada para RPPN Serra Bonita e Torre da Embratel, Trilha da Pousada, 15°23'30"S, 39°33'55"W, 730 m, 27 July 2008, *F.B. Matos & R.R. Santos 1522* (SP, UPCB-n.v.). **Rio de Janeiro:** sylvis montanis prope Tejuicca [Tijuca], s.d., *G. Raddi s.n.* (FI-on 3 sheets). **São Paulo:** Itirapina, Serra de Itaqueri, às margens de riacho afluente do Rio da Cachoeira, 10 Jan 1992, *A. Salino 1248* (BHCB, UEC-on 2 sheets).

ECUADOR. Department Unknown: Andes, Rio Bombonasa, s.d., *R. Spruce 5349* (K).

BOLIVIA. La Paz: San Carlos de Mapiri, "15°S", 750 m, Oct 1907, *O. Buchtien 1134* (BCN-2 sheets, K [as "Buchtien 11"], L, LE, PR, SI, UC-n.v.). **Cochabamba:** Chapare, road from Villa Tunari to El Palmar, ca. 1 km above Las Cuevas, 500 m, 6 July 1997, *J.R.I. Wood 12392* (LPB, UC-n.v.).

PARAGUAY. Amambay: Paraguaria septentrionali, Sierra de Amambay, Punta Pará [Ponta Porã, Brazil?], Apr 1907–1908, *T. Rojas 10447* (BM-on 2 sheets, G-on 2 sheets, G-on 5 sheets). **Concepción:** Regione calcarea cursus superioris fluminis Apa, Apr 1912–1913, *E. Hassler 11620* (G-on 3 sheets).

Christenhusz (2009: 239) designated the tabula 21, Fig. 1, of Fée's *Hist. Foug. Ant.* (1866) as lectotype of *Hypolepis delicatula* Fée, "because no herbarium material is in existence". We actually found two types of it: in RB and G. Thus, we are here re-designating the lectotype: RB!-120407 (isolectotype: G!-on 2 sheets) (McNeill *et al.* 2012, Art. 9.19 and Recs. 9A.1, 9A.2, and 9A.3). *Hypolepis repens* was the first *Hypolepis* species described for the Americas (*Filix acueata repens* Plum. — Plumier 1705), and it is indeed the most widespread species there: occurring from Florida (USA) through the Antilles; from Mexico through Mesoamerica; from northern South America (Colombia, Venezuela, Guianas) eastwards surrounding the Amazon through Brazil (Pará, Ceará, Pernambuco, Alagoas), then southwards to Bahia, Rio de Janeiro, and São Paulo; and from northern South America (Colombia) southwards (between the Andes and the Amazon) to Ecuador, Bolivia, and Paraguay. *Hypolepis repens* has its austral limits of distribution in São Paulo (Brazil) and Amambay

(Paraguay); it does not occur in the American Pacific Islands (e.g., Cocos and Galapagos Islands) (Fig. 22C).

Hypolepis repens is easily identified by the following combinations of characters: medium sized to large fronds (1.5–3 m x 1–1.4 m), armed petioles and rachises, lamina axes furnished with only catenate-acicular hairs and trichomidia (catenate-glandular hairs absent), laminar tissue between the veins glabrous abaxially and adaxially, and hyaline pseudoindusia with smooth to slightly crenate margins (never ciliate) (Figs. 15A–E). For a further differentiation with taxa commonly confused with (*H. acantha*, *H. galapagensis*, *H. melanochlaena*, *H. mitis*, *H. parallelogramma*, and *H. poeppigii*), see their respective discussion.

22. *Hypolepis rigescens* (Kunze in Martius) T. Moore, Index Fil. (T. Moore) 11: 252. 1861. *Cheilanthes rigescens* Kunze in Martius, Flora 22(1), Beibl. 4: 51. 1839. *Polypodium punctatum* Thunb. f. *rigescens* (Kunze in Martius) Baker in Martius & Eichler, Fl. Bras. 1(2): 503, t. 65. 1870. LECTOTYPE (designated here).—BRAZIL. [Bahia]: crescit in sylvis siccoribus, locis montanis prope Ilheos et álibi, Dryas, 1817–1820, C.F.P. von Martius, Martii Herb. Fl. Brasil. n. 383 (BR!). Figs. 12A–C, 23A.

Hypolepis rubiginosopilosula Lellinger, Amer. Fern J. 93(3): 147. 2003. TYPE.—COSTA RICA. San José: Vicinity of El General, 1160 m, Dec 1936, A.F. Skutch 2975 (holotype: US-on 2 sheets, n.v.; isotype: K!).

? *Hypolepis minima* M. Kessler & A.R. Sm., Brittonia 59(2): 194, Figs. 3a, b. 2007. TYPE.—BOLIVIA. La Paz: Prov. Franz Tamayo, PN-ANMI Madidi, senda Keara-Mojos, Chunkani, 14°38'S, 68°57'W, 2950 m, 11 Oct 2001, I. Jiménez 972 (holotype: UC, image!; isotypes: GOET-n.v., LPB!).

Plants terrestrial. *Rhizomes* 1.5–4.5 mm diam.; *hairs* catenate-acicular, reddish-brown, 1–2 mm long, 15–20 celled. *Fronds* determinate, erect to arched, (40–)100–230 cm long; *petioles* (15–)40–100 cm x (2–)2.5–6 mm, purplish or rarely black proximally, golden-brown above, rugose, the *aculei* straight, 0.2–1.2 mm long, abaxially and adaxially sparsely pilose to glabrescent with two kinds of hairs, the *first kind of hair* catenate-acicular, hyaline with reddish cross-walls, 0.1–0.2 mm long, 4–7-celled, the *second kind of hairs* catenate-glandular, hyaline with reddish cross-walls, 0.1–0.5 mm long, 4–8-celled; *laminae* ovate, (bi-pinnate-pinnatifid–) tripinnate-pinnatifid to quadripinnate proximally, (25–)70–130 x (25–)50–80 cm; *rachises* slightly curved at base, otherwise straight, golden-brown proximally, stramineous above, rugose, aculeate, sparsely pilose abaxially and adaxially, with hairs similar to those from the petioles; *basal pinnae* (12–)25–40 x (4.5–)12–25 cm, subequilateral; *costae* pilose abaxially and adaxially, with both kinds of hairs, the *first kind of hairs* longer, 0.4–1.5 mm long, 7–15-celled; *costules* pilose abaxially, glabrescent adaxially, the *hairs* similar to those from costae; *veins* pilose abaxially, glabrescent adaxially, with only the *second kind of*

hair, these shorter, 0.1–0.15 mm long, 2–3-celled; laminal tissue between the veins abaxially with hairs similar to those from veins, adaxially glabrous; lamina margins glabrous; sori marginal; pseudoindusia proximally greenish, distally hyaline, the margins crenate to dentate, rarely with one or two cilia.

Distribution and ecology.—Costa Rica, Panama (*apud* Lellinger 2003), Colombia, Venezuela, Guyana, Suriname, French Guiana (probably), Brazil (Roraima, Pernambuco, Bahia, Minas Gerais, Espírito Santo, Rio de Janeiro, São Paulo, Paraná), Ecuador, Peru, and Bolivia; from (400–) 600 to 2000 (–2950) m.

Specimens examined.—COLOMBIA. **Bolivar:** Antizales, 1200–1600 m, 25–26 Feb 1918, *F.W. Pennell 4464* (K, NY-*n.v.*). **Antioquia:** Mun. Anorí, Vereda Santa Gertrudis, finca La Estrella, 07°07'58.8"N, 75°09'34.9"W, 1420 m, 3 Oct 2003, *W.D. Rodríguez et al. 4118* (HUA-on 3 sheets). **Chocó:** Principal ridge and slopes 2 km E of San José del Palmar, 1550–1650 m, 26 Mar 1971, *D.B. Lellinger & E.R. de la Sota 734* (HUA, LP-*n.v.*, US-*n.v.*). **Cundinamarca:** Caqueza, s.d., *G.K.W.H. Karsten s.n.* (W). **Boyacá:** Santa María, via al Bosque la Almenara, 04°45'26"N, 73°18'20"W, 1200 m, 13 Nov 2003, *C.M. Méndez-A. et al. '71'* (HUA). **Arauca:** Sarare Gibraltar, 700–900 m, 26–27 Mar 1959, *M. Bischler 2053* (FI-PS, G-2 sheets). **Meta:** Villavicencio, 600 m, 3 Jan 1876, *E. André 1069-bis* (K). **Cauca:** *Andium occidentale* popayanensium, 1000–1500 m, s.d., *F.C. Lehmann 6952* (K-2 sheets).

VENEZUELA. **Táchira:** Distr. Uribante, in forest along road from La Siberia to entrance to Las Cuevas, Represa, 10 July 1983, *H.H. van der Werff & A. González 5238* (MO-*n.v.*, VEN). **Falcón:** Sierra San Luis, cerca del Hotel Parador, 1300 m, 3 Sep 1978, *H.H. van der Werff & R. Wingfield 3040* (CORO-*n.v.*, U).

Intersection of VENEZUELA, GUYANA, and BRAZIL. Roraima, 1863–1864, *C. Appun 1349* (K).

SURINAME. [**Marowijne or Sipaliwini**]: Nassau Mountains, Marowijne River, 400–550 m, 7 Jan 1955, *B. Maguire et al. 39196 A* (HB, K-on 2 sheets, NY-*n.v.*, UC-*n.v.*, US-*n.v.*).

BRAZIL. **Pernambuco:** Jaqueira, Usina Colônia, Mata Córrego da Guariba, 08°43'00.2"S, 35°50'20.2"W, 652 m, 6 Dec 2001, *M.S. Lopes & M.R. Pietrobon-Silva 510* (RB, UFP). **Bahia:** Locality unknown, [5 Feb 1838?], *B. Luschnath 109* (B-on 2 sheets, B-2 sheets, LE-5 sheets — excluded syntypes of *Hypolepis repens* var. *selloana* Klotzsch ex Baker). **Minas Gerais:** Ouro Preto, 1937, *J. Badini 312* (RB). **Espírito Santo:** Cachoeira de Itapemirim, Vargem Alta, 24 Aug 1948, *A.C. Brade 19355* (RB-*n.v.*, SP). **Rio de Janeiro:** in montibus Estrellae, s.d., *G.H. von Langsdorff & L. Riedel 99* (LE). **São Paulo:** Rio Grande, 1906, *L. Wacket s.n.*, *Rosenst. Filic. Austrobras. Exsic. 183* (B). **Paraná:** Alexandra, in cultis, 5 Sep 1910, *P.K.H. Dusén 10222* (BM, BR, G, K, LE, NY-*n.v.*).

ECUADOR. **Morona Santiago:** Misión Bomboiza, 03°29'S, 78°34'W, ca. 800 m, 23 Apr 1973, *L. Holm-Nielsen et al. 4267* (K-on 2 sheets).

PERU. **Huánuco:** Huanuco, Tingo Maria, 700 m, 1 Sep 1956, *R.M. Tryon & A.F. Tryon 5240* (BM, F-*n.v.*, GH-*n.v.*, U, US-*n.v.*, USM-*n.v.*). **Junín:** Carpapata, 2000 m, 13 Nov 1960, *E. Kunkel '6654'* [or '550'] (G-on 2 sheets, GH-*n.v.*).

BOLIVIA. **La Paz:** Prov. J. Bautista Saavedra M., Pauji-Yuyo, entre Apolo y Charazani, 15°02'S, 68°29'W, 1200 m, 12 June 1997, *M. Kessler et al.* 10078 (LPB, UC-*n.v.*). **Cochabamba:** Chapare, San Onofre, 1600 m, 21 Feb 1929, *J. Steinbach* 9302 (BM, K, U, UC-*n.v.*).

Hypolepis rigescens is a wide spread species that has been overlooked by most authors from the 20th and 21st Centuries. The concept here adopted is similar to that of Hieronymus (1905). *Hypolepis rigescens* is similar to *H. galapagensis*, *H. hostilis*, *H. lellingeri*, and *H. viscosa*, probably forming a natural group of species. *Hypolepis rigescens* differs from *H. hostilis* by petioles purplish or rarely black proximally (*vs.* always black), golden-brown rachises (*vs.* stramineous), laminar tissue between veins abaxially with catenate-glandular hairs (*vs.* glabrous), and crenate to dentate margins of the pseudoindusia, rarely with one or two cilia (*vs.* crenate, never ciliate) (Figs. 12A–C *vs.* Figs. 12D, E). Also, there are apparent elevation preferences: while *H. hostilis* occurs in low elevations (0–500(–685) m), *H. rigescens* occurs in the mid to high elevations, ((400–)600–2000 m).

Another similar species is *Hypolepis tenerrima* Maxon (*Abbott* 1619 [holotype: US!-1146596]), endemic to Hispaniola and Puerto Rico (Maxon 1924; Proctor 1989). *Hypolepis rigescens* differs from *H. tenerrima* by the laminar tissue between the veins abaxially with short catenate-glandular hairs (*vs.* with short catenate-acicular hairs) (Fig. 12C). One collection from Venezuela (*J.A. Steyermark et al.* 124843 [VEN]) seems very similar to *H. tenerrima*, but further collections are needed to be sure about the occurrence of this species in South America.

Hypolepis minima (placed here as a synonym, with doubts) is known only from the type collection, and it was mainly characterized by its small size (Kessler & Smith 2007). Further collections are needed to be sure about its identity. Apparently, it is just a dwarf form of *H. rigescens* from 2950 m. Murillo-Pulido *et al.* (2008) cited *Hypolepis microchlaena* Mickel & Beitel for Colombia (*Rodríguez* 3586 [COL-*n.v.*]). Probably, this collection represents *H. rigescens*.

23. *Hypolepis rugosula* (Labill.) J. Sm., *Bot. Mag.* 3rd ser., 2: 8. 1846, as “*rugulosa*”. *Polypodium rugosulum* Labill., *Nov. Holl. Pl.* 2: 92, t. 241. 1806 [1807?]. *Phegopteris rugosula* (Labill.) Fée, *Gen. Filic.*: 243. 1852, as “*rugulosa*”. *Polypodium punctatum* Thunb. var. *rugosulum* (Labill.) Hook. & Baker, *Syn. Fil.*: 312. 1867, as “*rugulosum*”. *Phegopteris punctata* (Thunb.) Mett. var. *rugosula* (Labill.) Hillebr., *Fl. Hawaiian Island* (Hillebrand): 563. 1888, as “*rugulosa*”. *Dryopteris punctata* (Thunb.) C. Chr. subsp. *rugosula* (Labill.) C. Chr., *Index Filic.*: 287. 1905. *Dryopteris punctata* (Thunb.) C. Chr. var. *rugosula* (Labill.) Domin, *Biblioth. Bot.* 85: 41. 1913. *Hypolepis rugosula* (Labill.) J. Sm. var. *rugosula* C. Chr. & Skottsb. in Skottsb., *Nat. Hist. Juan Fernandez* (Botany): 32. 1920, as “var. *typica*”. LECTOTYPE (first step designated by Pichi-Sermolli 1983: 260; second step by Schwartsburd and Prado 2011b: 157).—TASMANIA. Habitat in Capite

Van-Diemen, 1791–1793, *J.J.H. de Labillardière s.n.* (FI-W!-214897; isolectotypes: FI-W!-214898, FI-W!-214899, FI-W!-on 2 sheets [214903 and 214904], FI-W!-216239, FI-W!-218473, G!-on 2 sheets [00048249 and 00048250], G!-on 2 sheets [00048252 and 00048253], G!-00048255, LE!-2 sheets; probable isolectotypes: G!-00048251, K!, L!-908837, PRC!). **Figs. 3A–D, 23B, 24A–E.**

Plants terrestrial or from rock crevices. *Rhizomes* (1.2–)2–4 mm diam.; the *hairs* catenate-acicular, yellowish to reddish-brown, 1–3(–4) mm long, 15–30-celled. *Fronds* determinate, erect to arched, (15–)60–140 cm long; *petioles* (6–)20–50 cm x (0.8–)1.5–4 mm, burgundy, rugose, inermous, villous abaxially and adaxially, with three kinds of hairs, the *first kind of hair* catenate-acicular, hyaline, hyaline with reddish cross-walls, or rarely entirely reddish, 0.3–0.7 mm long, 5–10-celled, the *second kind of hair* catenate-glandular, hyaline with reddish cross-walls or rarely entirely reddish, 0.3–0.7 mm long, 5–10-celled, the *third kind of hair* similar to those from the rhizomes, caducous; *laminae* lanceolate or ovate, bipinnate-pinnatifid to tripinnate-pinnatifid proximally, (10–)40–95 x (4–)20–60 cm; *rachises* straight, burgundy throughout, or burgundy proximally and stramineous above, rugose, inermous, the *indument* similar to the petioles; *basal pinnae* (2–)12–30 x (1.5–)4–12 cm, equilateral; *costae* villous abaxially and adaxially, the *hairs* similar to those from the petioles and rachises, but the *third kind of hair* usually absent; *costules* abaxially with both the *first and second kinds of hairs* (subsp. *poeppigiana*), or with only the *second kind of hair* (subsp. *pradoana*), adaxially with both the *first and second kinds of hair*, these smaller, 0.2–0.5 mm long, 4–7-celled; *veins* with the same pattern of indument from costules; *laminar tissue between the veins* glabrous abaxially, adaxially with both the *first and second kinds of hair*, these ca. 0.2–0.3 mm long, 3–4-celled; *lamina margins* with the *first and second kinds of hair* sparsely throughout, and only the *first kind* on the soral region; *sori* submarginal, unprotected or slightly protected; *pseudoindusia* absent, sometimes the lamina margins slightly revolute and protecting the sori, but never differentiated into thinner flaps.

Distribution and ecology.—Subcosmopolitan. The populations are segregated from each other: Tasmania and Australia; New Zealand; the highlands of New Guinea; Luzon (Philippines); Santa Helena Island; Ascension Island; Madagascar, Réunion Island, and Mauritius; Bioko and the high lands of Central Africa (the Democratic Republic of the Congo, Ethiopia, Uganda, Kenya, Tanzania, and Rwanda), Tristan da Cunha and Gough Islands; central and southern Argentina and Chile (including Chiloé and the Juan Fernandez Islands); the highlands of southern and southeastern Brazil; the highlands of Costa Rica; and the highlands of Mexico, Jamaica, and Hispaniola. At sea level and above in temperate regions; above ca. 1000 m in subtropical regions; and above ca. 2000 m in tropical regions, having been reported at 3450 m in Uganda, and 3560 in New Guinea.

This subcosmopolitan species was studied in detail by Schwartsburd and Prado (2014). These authors considered the segregate populations as 15 geographical subspecies. Two of which occur in South America:

KEY TO THE SUBSPECIES OF *HYPOLEPIS RUGOSULA* IN SOUTH AMERICA

Costules and veins abaxially with both catenate-acicular and catenate-glandular hairs; plants from central and southern Argentina and Chile (including Chiloé and the Juan Fernandez Islands 23a. *H. rugosula* subsp. *poepigiana*

Costules and veins abaxially with only catenate-glandular hairs; plants from the highlands of southern and southeastern Brazil. 23b. *H. rugosula* subsp. *pradoana*

23a. *Hypolepis rugosula* (Labill.) J. Sm. subsp. *poepigiana* (Mett.)
Schwartzb. & J. Prado, Acta Bot. Bras. 28(2): 213. 2014. *Hypolepis poepigiana* Mett. in Hohenackeri, Fil. Lechler. 1: 18. 1856. LECTOTYPE (designated by Schwartsburd and Prado 2014: 213).—CHILE. [**Los Ríos**]: prope coloniam Arique in prov. Valdivia, May 1851, *W. Lechler, Pl. Chil. 194* (B!-20 0074790; ISOLECTOTYPES: B!-20 0074789, B!-20 0074791, FI!, FI-W!-214914, G!-on 2 sheets, GOET-*n.v.*, K!-000640324, K!-000640325, K!-000640326, L!, LE!-2 sheets, UPS!, W!). **Fig. 23B.**

Hypolepis chilensis Fée, Ic. Sp. Nouv.: 76. 1857 [or 1858?] *p.p., nom. superfl.* SYNTYPES.—CHILE. **Valparaíso**: Valparaíso, [1834 or 1835], *C. Gaudichaud s.n.* [31?] (BR!, FI-W!-214906, FI-W!-214910, FI-W!-216216, G!, RB!, W!; probable duplicate: FI-W!-214917). CHILE. San Juan Fernandez, *C. Gay* (P?, PC?). CHILE. [**Los Ríos**]: près de la colonie Arique, province de Valdivia, [May 1851], *W. Lechler [Pl. Chil. 194]* (B!-3 sheets [20 0074789, 20 0074790, 20 0074791], FI!, FI-W!-214914, G!-on 2 sheets, GOET-*n.v.*, K!-000640324, K!-000640325, K!-000640326, L!, LE!-2 sheets, UPS!, W!).

Phegopteris poepigii (Kunze) Fée ex Gay var. *hirsuta* Phil., Anales Univ. Chile: 583. 1873 [or 1872?]. LECTOTYPE (designated by Schwartsburd and Prado 2014: 214).—CHILE. Puerto Lagunas, Jan 1872, *E. Simpson s.n.* (SGO-0467, image!).

Hypolepis hauman-merckii Hicken, Anal. Soc. Cient. Arg. 62: 212, t. *s.n.* 1906. LECTOTYPE (designated by Schwartsburd and Prado 2014: 214).—ARGENTINA. **Prov. Buenos Aires**: Sierra de la Ventana, 25 Dec 1905, *M. Hauman-Merck s.n.* (SI-000095, image!).

Distribution and ecology.—Central and southern Argentina and Chile (including Juan Fernandez and Chiloé Islands); at sea level to 800(–1200?) m.

Specimens examined.—ARGENTINA. **Neuquén**: Correntoso, 10 Jan 1935, *A.L. Cabrera & M.M. Job 227* (LP). **Río Negro**: Puerto Blest, picada a Pto. Cántaros, 29 Nov 1997, *J. Puntieri 396* (BCRU-on 2 sheets).

CHILE. **Coquimbo:** Bosque Fray Jorge, 500 m, 7 July 1938, *C.H. Andreas 856* (L-on 2 sheets, U). **Valparaíso:** Valparaíso, s.d., *Anonymous* ["Bredger"?] 562 (W). **Bío-Bío:** prope Concepcion, 1832, *H. Cuming 149* (BM). **La Araucanía:** Tolten forest, 10 Jan 1902, *H.J. Elwes s.n.* (K); Prov. Cautín, Telmuco, Cierro Ñielol, 38°43'S, 72°35'W, 150 m, 15 July 1939, *G. Montero 3696* (G-on 2 sheets). **Los Ríos:** Prov. Valdivia, Pauquipulei, ca. 200 m, May 1926, *A. Hollermayer s.n.*, *Werdermann Pl. Chilensis n. 1880* (B-n.v., U). **Los Lagos:** Prov. Palena, near Villa Sta. Lucía, 29 Jan 1986, *T.M. Pedersen 14329* (BR, MBM). **Aisén del General Carlos Ibañez del Campo:** Patagonia Occid., Golfo de Peñas, Pto. Hale, 9 June 1908, *C. Skottsberg 302* (UPS). **Magallanes [or Natales?]:** Puerto Edén, 23 July 1970, *O. Parra 106* (INTA).

CHILE, JUAN FERNÁNDEZ ISLANDS. **Más a Tierra [Robinson Crusoe]:** Valle Colonial, 11 Dec 1916, *C. Skottsberg & I. Skottsberg 120* (K, UPS). **Más Afuera [Alejandro Selkirk]:** Quebrada del Mono, ca. 400 m, 12 Feb 1917, *C. Skottsberg & I. Skottsberg 439* (UPS).

CHILE, CHILOÉ ISLANDS. **Chiloé [Isla Grande de Chiloé]:** s.d., *Cap. King s.n.* (K-on 2 sheets).

Many authors have confused this taxon with *Hypolepis poeppigii*, which is unrelated to the *Hypolepis rugosula* complex. *Hypolepis rugosula* subsp. *poeppigiana* differs from *H. poeppigii* by burgundy petioles and rachises (vs. dark brown below, light brown to stramineous above), equilateral basal pinnae (vs. subequilateral), veins abaxially and adaxially with catenate-acicular and catenate-glandular hairs (vs. glabrous), and lamina margins with catenate-acicular and catenate-glandular hairs (vs. glabrous, or with scattered catenate-acicular hairs) (see also Arana *et al.* 2014; Schwartsburd & Prado 2014). In addition, *Hypolepis rugosula* subsp. *poeppigiana* presents a more southern distribution, compared to *H. poeppigii* (see Figs. 22A and 23B).

23b. *Hypolepis rugosula* (Labill.) J. Sm. subsp. ***pradoana*** Schwartsb., *Kew Bull.* 67(4): 818, Figs. 2A–E, 3C, D. 2012. TYPE.—BRAZIL. **Rio de Janeiro:** Teresópolis, Parque Nacional da Serra dos Órgãos, Matas Nebulares e Campos de Altitude, Pedra do Sino, próximo ao Abrigo Quatro, no caminho para a caixa d'água, 22°27'42"S, 43°01'50"W, 2120 m, 7 Jan 2011, *P.B. Schwartsburd & J.B.S. Pereira 2310* (holotype: SP!-on 3 sheets; isotypes: B!, FI!, G!, K!-on 3 sheets, LP!, NY!-on 2 sheets, P!-on 2 sheets, PRC!, RB!-on 2 sheets, SI!, SP!, UC!, UPCB!, VIC!, WELT!). **Figs. 3A–D, 23B, 24A–E.**

Distribution and ecology.—Endemic to the highlands of southern and southeastern Brazil; from 1200 to 1800 (in southern Brazil), and 2000 to 2600 m (in southeastern Brazil).

Specimens examined.—BRAZIL. **Minas Gerais:** Alto Caparaó, Parque Nacional do Caparaó, Pico da Bandeira, 2600 m, 9 July 2009, *P.B. Schwartsburd et al. 2000* (SP, VIC). **Rio de Janeiro:** Petrópolis, Parque Nacional da Serra dos Órgãos, Castelo do Açú, 22°29'08" S, 43°03'42"W, 2100–2150 m, 10 Jan 2011, *P.B. Schwartsburd et al. 2323* (VIC). **Paraná:** Campina Grande do Sul, Parque Estadual do Pico do Paraná, 25°15'S, 48°50'W,



FIG. 23. A. Distribution of *Hypolepis rigescens*. B. Distribution of *Hypolepis rugosula* subsp. *poeppigiana* (white triangles) and *Hypolepis rugosula* subsp. *pradoana* (black triangles). C. Distribution of *Hypolepis scandens*.

1500–1876 m, 9 July 2008, *P.H. Labiak et al.* 4778 (UPCB-on 2 sheets). **Santa Catarina:** Timbé do Sul, Serra da Rocinha, 4 Nov 1991, *R.M. Bueno s.n.* (ICN-155000). **Rio Grande do Sul:** Santa Cruz, Nov 1911, *C. Jürgens 352*, *Rosenst. Fil. Austrobras. exsic. II 77* (B, NY-*n.v.*).

Hypolepis rugosula subsp. *pradoana* is the unique taxon in southern and southeastern Brazil with burgundy petioles and rachises, equilateral basal pinnae, submarginal sori, and absence of pseudoindusia. Among the inermous taxa, *H. rugosula* subsp. *pradoana* is unique in having catenate-glandular hairs in the lamina axes — the other taxa are eglandular (Figs. 24A–E; see also Schwartsburd 2012a).

24. *Hypolepis scandens* M. Kessler & A.R. Sm., *Brittonia* 59(2): 193, Fig. 3c. 2007. TYPE.—BOLIVIA. **Depto. La Paz:** Prov. Nor Yungas, 10 km de Chuspipata hacia Coroico, al borde de la carretera, 16°24'S, 67°47'W, 2500 m, 20 Sep 1997, *M. Kessler, J. González, K. Bach & A. Portugal 12187* (holotype: UC, image!; isotypes: GOET-*n.v.*, LPB!). **Figs. 19E–H, 23C.**

Plants terrestrial. *Rhizomes* 3–5 mm diam.; *hairs* catenate-acicular, yellowish-brown, 1.5–3 mm long, 15–35-celled. *Fronds* determinate, scandent, 1.5–2.5 m long; *petioles* 75–130 cm x 5–9 mm, dark brown proximally, light brown to stramineous above, non-rugose, the *aculei* straight, (0.3–)0.6–3 mm long, abaxially and adaxially with trichomidia, the *trichomidia* hyaline with reddish cross-walls and apex, laterally appressed, 0.2–0.5 mm long, 4–12-celled; *laminae* rhombic, tripinnate-pinnatifid to quadripinnate-pinnatifid proximally, 1–1.5 x 1–1.2 m; *rachises* straight, light brown to stramineous, non-rugose, aculeate, abaxially and adaxially with trichomidia; *basal pinnae* 50–60 x 30–40 cm, inequilateral; *costae* abaxially with trichomidia, adaxially with hairs and trichomidia, the *hairs* catenate-acicular, hyaline, 0.5–1 mm long, 7–12-celled; *costules* abaxially with trichomidia, adaxially with hairs and trichomidia; *veins* abaxially and adaxially with trichomidia; *laminar tissue between the veins* abaxially and adaxially with trichomidia; *lamina margins* glabrous; *sori* marginal; *pseudoindusia* proximally greenish, distally hyaline, the *margins* smooth to dentate, glabrous.

Distribution and ecology.—Endemic to Bolivia, in the departments of La Paz and Cochabamba; from 1700 to 2500 m.

Specimens examined.—BOLIVIA. **La Paz:** Murillo Prov., Zongo Valley, 1.6 km down the valley from Sainani, 16°07'S, 68°05'W, 2100 m, 5–6 Aug 1990, *A. Fay & L. Fay 2889* (LPB-on 2 sheets, MO-*n.v.*, UC-*n.v.*). **Cochabamba:** Prov. Ayopaya, Comunidad Pampa Grande, al inicio del sendero Pampa Grande-Carmen Pampa, 16°40'S, 66°28'W, 2110 m, 8 Sep 2002, *I. Jiménez & A. Moguel 1454* (LPB-on 2 sheets); Prov. Ayopaya, Comunidad Pampa Grande, arroyo pequeño arriba de Pampa Grande, al inicio del sendero a Incacasani Grande, 16°40'S, 66°28'W, 2240 m, 13 Sep 2002, *I. Jiménez & A. Moguel 1604* (LPB-on 2 sheets, UC-*n.v.*); Prov. José Carrasco Torrico, 130 km antigua carretera Cochabamba-Villa Tunari, 17°07'S, 65°36'W, 2000 m, 11 July 1996, *M. Kessler et al. 7187 b* (LPB, UC-*n.v.*); Prov. José Carrasco Torrico, 135 km Antigua

carretera Cochabamba-Villa Tunari, 17°07'S, 65°34'W, 1700 m, 17 July 1996, M. Kessler *et al.* 7355 (LPB-on 2 sheets, UC-n.v.); Prov. José Carrasco Torrico, 5 km de Siberia hacia Karahuasi, 17°48'S, 64°41'W, 2200 m, 15 Oct 1996, M. Kessler *et al.* 9068 (LPB, UC-n.v.).

Hypolepis scandens is somehow similar to *Hypolepis parallelogramma*, due to armed petioles and rachises, and indument especially composed of trichomidia. In Bolivia, they occur nearby each other, but with different elevation preferences: while *H. parallelogramma* occurs from 850 to 1900 m (one collection from 2450 m), *H. scandens* occurs from 1700 to 2500 m. *Hypolepis scandens* differs from *H. parallelogramma* by petioles and rachises with longer aculei, 0.3–3 mm long (vs. 0.2–0.6 mm long), rhombic lamina (vs. oblong), inequilateral basal pinnae (vs. equilateral), laminar tissue abaxially with trichomidia (vs. glabrous), and pseudoindusia proximally greenish, distally hyaline (vs. stramineous) (Figs. 19E–H vs. Figs. 19A–D).

25. *Hypolepis stolonifera* Fée, Crypt. Vasc. Brésil 2: 35, t. 91, Fig. 2. 1873 (*in tabula sub Cheilanthes*). LECTOTYPE (designated here).—BRAZIL. [Rio de Janeiro]: Brasilia fluminensi, ad montes Orgaos, scaturigines amnis Soberbo, [4 Apr 1870], A.F.A. Glaziou 4435 (P-00633494 [ex Herb. Fée], image!; isolectotypes: B!-20 0074973, B!-20 0075126, C-n.v., GH-n.v., P-00633493 [ex Herb Glaziou], image!, P-00633495 [ex Herb. Mus. Paris], image!). **Figs. 3E, F, 4D–F, 5A–I, 6D–F, 25A.**

Plants terrestrial. *Rhizomes* 2–5 mm diam.; *hairs* catenate-acicular, yellowish-brown, 1–2 mm long, 15–20-celled. *Fronde*s determinate, erect to arched, 0.6–1.5 m long (var. *delasotae* and *nebularis*), or 1.2–2 m long (var. *stolonifera*); *petioles* (30–)45–75(–95) cm x 3–7 mm, purplish proximally, golden-brown above, with wine red spots (var. *nebularis*) or immaculate (var. *stolonifera* and *delasotae*), rugose, inermous, glabrescent; *laminae* rhombic, proximally (tripinnate-pinnatifid–) quadripinnate-pinnatifid to pentapinnate, 30–75 x 30–100 cm (var. *delasotae* and *nebularis*), or 60–120 x 80–120 cm (var. *stolonifera*); *rachises* straight, light golden-brown proximally, with wine red spots (var. *nebularis*) or immaculate (var. *stolonifera* and *delasotae*), light brown to greenish stramineous above, rugose, inermous, abaxially and adaxially villous to glabrescent, the *hairs* catenate-acicular, hyaline or hyaline with reddish cross-walls, 0.4–0.8(–1.2) mm long, 4–8(–10)-celled; *basal pinnae* 15–50 x 15–40 cm (var. *delasotae* and *nebularis*), 40–60 x 20–50 cm (var. *stolonifera*), inequilateral; *costae* villous abaxially and adaxially, the *hairs* similar in size to those from rachises, hyaline (var. *stolonifera* and *delasotae*), or yellowish (var. *nebularis*); *costules* abaxially villous, adaxially villous to glabrescent, the *hairs* similar to those from costae; *veins* abaxially villous to glabrescent, adaxially glabrous, the *hairs* similar to those from the costae and costules but shorter, 0.2–0.4 mm long, 3–5-celled; *laminar tissue between the veins* glabrous abaxially (var. *stolonifera* and *delasotae*), or strigose with hairs similar to those from veins (var. *delasotae*), glabrous adaxially; *lamina margins*



FIG. 24. *Hypolepis rugosula* subsp. *pradoana*. A. Habit, showing 3-pinnate-pinnatifid lamina (Schwartzburd 2310). B. Habit, showing 2-pinnate-pinnatifid lamina (Schwartzburd 2310). C. Secondary pinnule, adaxially (Forzza 3412). D. Fertile secondary pinnule, abaxially (Forzza 3412). E. Detail of the lamina margin (Forzza 3412).

glabrous; *sori* marginal; *pseudoindusia* proximally greenish, distally hyaline, the *margins* ciliate.

Hypolepis stolonifera is the most common and widespread species of southern and southeastern Brazil (occurring also in northeastern Argentina) (Schwartzburd 2012a; Arana *et al.* 2014; pers. obs. of the authors). It is easily identified by the following combination of characteristics: inermous petioles

and rachises, lamina axes with only catenate-acicular hairs (catenate-glandular hairs absent), inequilateral basal pinnae, laminar tissue between the veins abaxially glabrous (strigose in var. *delasotae*), and ciliate margins of pseudoindusia (Figs. 5A–I, 6D–F). Another common species occurring there is *H. mitis*, which presents armed petioles and rachises. However, *H. stolonifera* is more similar to certain Australasian species (*H. dicksonioides* (Endl.) Hook., *H. elegans* Carruth., and *H. tenuifolia* (G. Forst.) Bernh.), than to other South American species. It is especially similar to *H. elegans* subsp. *elegans* from Australia and southwestern Pacific Islands (Brownsey 1987; Brownsey and Chinnock 1987). Apart from distribution, *H. stolonifera* differs from *H. elegans* subsp. *elegans* by glabrescent petioles (*vs.* villous), and ciliate margins of pseudoindusia (*vs.* slightly crenate margins, never ciliate). *Hypolepis stolonifera* differs from *H. elegans* subsp. *carolinensis* Brownsey (endemic to the Caroline Islands) by costules and veins abaxially with shorter catenate-acicular hairs, respectively 0.4–0.8 and 0.2–0.4 mm long (*vs.* 1–2 mm long).

Apparently, *Hypolepis stolonifera* crosses with *H. rugosula* (subsp. *pradoana*), generating the putative hybrid *H. ×paulistana* (see its respective discussion).

We here recognize three varieties of *Hypolepis stolonifera*, as previously described (Arana *et al.* 2014; Schwartsburd 2012a): *H. stolonifera* var. *stolonifera*, *H. stolonifera* var. *delasotae*, and *H. stolonifera* var. *nebularis*. *Hypolepis stolonifera* var. *delasotae* is a morpho-variety endemic to Selva Paranaense, around the Iguazu River, in southern Brazil and northeastern Argentina. It differs from *H. stolonifera* var. *stolonifera* by shorter fronds (0.6–1.5 m *vs.* 1.2–2 m), shorter basal pinnae (15–50 x 15–40 cm *vs.* 40–60 x 20–50 cm), and laminar tissue between the veins abaxially strigose, with catenate-acicular hairs (*vs.* glabrous). On the other hand, *Hypolepis stolonifera* var. *nebularis* is an eco-variety endemic to the highlands of southern and southeastern Brazil. It differs from *H. stolonifera* var. *stolonifera* also by shorter fronds (0.6–1.5 m *vs.* 1.2–2 m), shorter basal pinnae (15–50 x 15–40 cm *vs.* 40–60 x 20–50 cm), petioles and rachises with wine red spots (*vs.* immaculate), and costae, costules and veins with yellowish catenate-acicular hairs (*vs.* hyaline catenate-acicular hairs) (see Figs. 5A–I and 6D–F). Also, the laminae of *H. stolonifera* var. *nebularis* dries yellowish, and the segments are contracted.

KEY TO THE VARIETIES OF *HYPOLEPIS STOLONIFERA*

1. Laminar tissue between the veins strigose abaxially, with catenate-acicular hairs 25b. *H. stolonifera* var. *delasotae*
1. Laminar tissue between the veins glabrous abaxially
 2. Fronds 1.2–2 m x 0.8–1.2 m; petioles and rachises immaculate; costae, costules and veins abaxially with hyaline catenate-acicular hairs 25a. *H. stolonifera* var. *stolonifera*

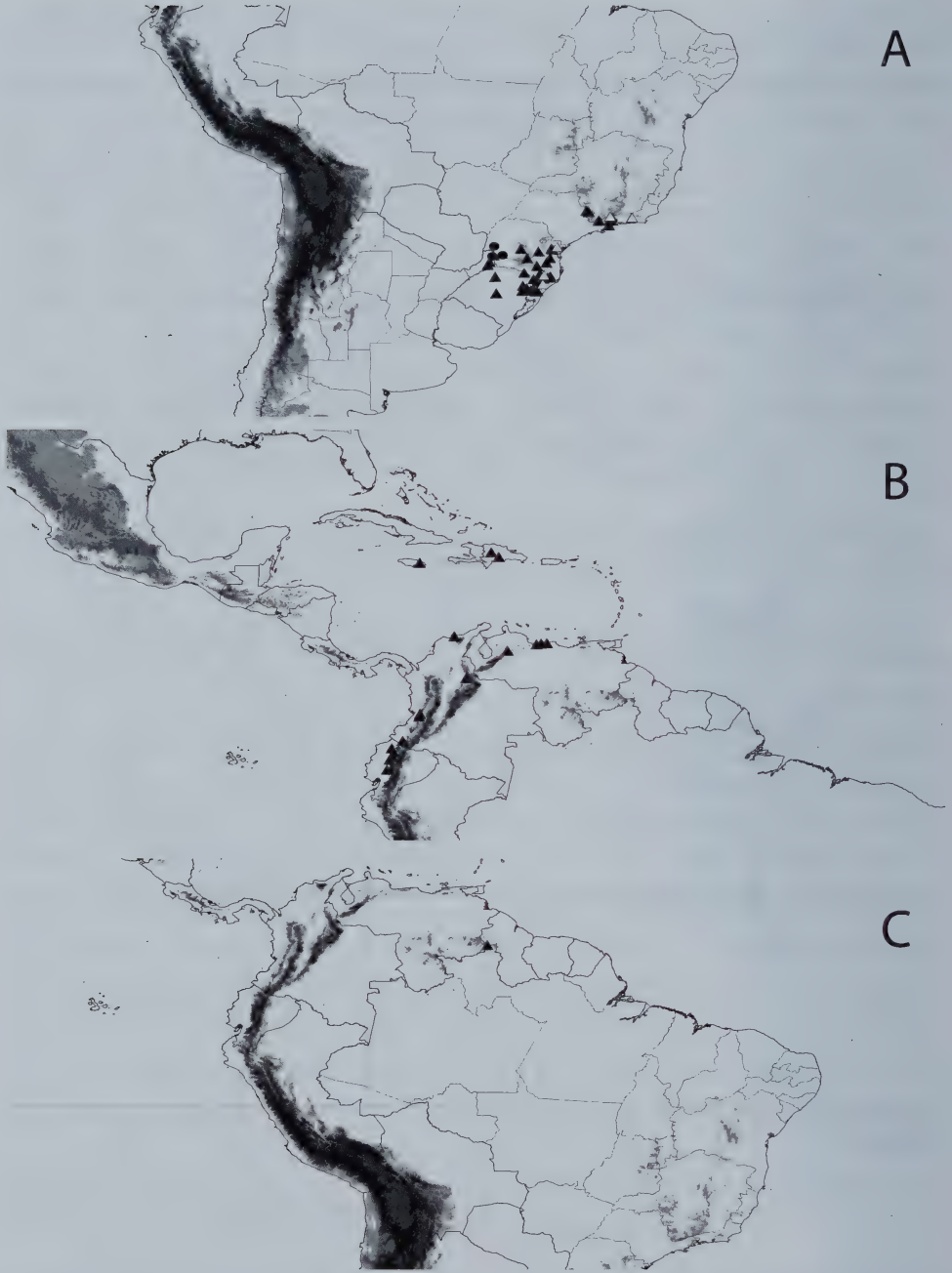


FIG. 25. A. Distribution of *Hypolepis stolonifera* var. *stolonifera* (black triangles), *Hypolepis stolonifera* var. *nebularis* (white triangles), and *Hypolepis stolonifera* var. *delasotae* (black circles). B. Distribution of *Hypolepis stuebelii*. C. Distribution of *Hypolepis trinationalis*.

2. Fronds 0.6–1.5 x 0.3–1 m long; petioles and rachises with wine red spots; costae, costules and veins abaxially with yellowish catenate-acicular hairs 25c. *H. stolonifera* var. *nebularis*

25a. *Hypolepis stolonifera* Fée var. *stolonifera*. Figs. 3E, F, 4D–F, 5A–I, 25A.

Distribution and ecology.—Endemic to southern and southeastern Brazil (Minas Gerais, Rio de Janeiro, São Paulo, Paraná, Santa Catarina, and Rio Grande do Sul), and northeastern Argentina (Misiones); from 550 to 2250 m.

Specimens examined.—BRAZIL. **Minas Gerais**: Cidade de Caldas, 18 Jan 1857, *A.F. Regnell II 322* (BR-on 2 sheets [as “1869”], UPS-2 sheets). **Rio de Janeiro**: Brasília fluminensi, ad Itatiaia, s.d., *A.F.A. Glaziou 5329* (B-20 0075123, C-*n.v.*, K [a specimen of *Hypolepis mitis*?], P-00633496 [ex Herb. Fée], image!), US [a specimen of *Hypolepis mitis*?] — syntypes of *Hypolepis stolonifera*. **São Paulo**: Silveiras, estrada do Parque Nacional da Serra da Bocaina, para Campos Novos, 1400 m, 7 Jan 2008, *P.H. Labiak et al. 4323* (SP-on 2 sheets, UPCB-on 2 sheets). **Paraná**: Curitiba, Parque Municipal Tingüi, 900 m, 12 Sep 2007, *P.B. Schwartsburd & T. Valente 1369* (SP, UPCB, VIC). **Santa Catarina**: Santa Cecília, BR 116, km 160, entre Sta. Cecília e Ponte Alta do Norte, subindo a Serra, 1050 m, 2 Feb 2009, *P.B. Schwartsburd & A.C. Corazzini 1914* (PACA, SP, VIC). **Rio Grande do Sul**: Silveira Martins, 5 Mar 1893, *C.A.M. Lindman s.n.*, *Imae. Regenllian. Exped. 171321* (G-on 2 sheets, K, NY-*n.v.*, S-*n.v.*).

ARGENTINA. **Misiones**: Depto. San Pedro, Parque Provincial Cruce Caballero, 14 Mar 2012, *A. Yañez & G. Marquez 101* (LP [image!]).

25b. *Hypolepis stolonifera* Fée var. *delasotae* Arana, Yañez & Schwartsb., Phytotaxa 188(2): 93, Figs. 1A, B, 2A–I, 4A, B. 2014. TYPE.—ARGENTINA.

Misiones: Depto. San Pedro. 12 Dec 1957. *R. Capurro 1354* (holotype: BA, image!). **Fig. 25A.**

Distribution and ecology.—Endemic to southern Brazil (Paraná) and northeastern Argentina (Misiones); ca. 450 m.

Specimens examined.—BRAZIL. **Paraná**: Céu Azul, Parque Nacional do Iguaçu, trilha para o Rio Azul, 25°11'20"S, 53°44'43"W, 450 m, 4 Oct 2006, *Labiak et al. 3856* (UPCB); Francisco Beltrão, Parque Municipal Irmão Sirilo, 25 Oct 2006, *Schwartsburd et al. 1112* (MBM, SP, UPCB).

ARGENTINA. **Misiones**: Depto. Gral. Belgrano, ruta 14, entre Irigoyen y Dos Hermanas, 15 Nov 1970, *E.R. de la Sota et al. 6146* (BA [image!], LP [image!], RCV-*n.v.* [frag.]); Depto. San Antonio, 3 Dec 1957, *R. Capurro 1275* (BA [image!]); Depto. Oberá. 11 Sep 1945, *R. Capurro 482* (BA [image!]).

25c. *Hypolepis stolonifera* Fée var. *nebularis* Schwartsb., Kew Bull. 67(4): 822, Figs. 1D–F, 3E, F. 2012. TYPE.—BRAZIL. **Rio de Janeiro: Teresópolis, Parque Nacional da Serra dos Órgãos, Pedra do Sino, próximo ao Abrigo Quatro, no caminho para a caixa d'água, 22°27'42"S, 43°01'50"W, 2120 m, 7**

Jan 2011, *P.B. Schwartsburd & J.B.S. Pereira 2309* (holotype: SP!-on 2 sheets; isotypes: B!-on 3 sheets, FI!, K!, NY!-on 2 sheets, P!-on 2 sheets, SP!, VIC!). **Figs. 6D–F, 25A.**

Distribution and ecology.—Endemic to the highlands of southern and southeastern Brazil (Rio de Janeiro, Paraná, and Santa Catarina); from 1300 to 2350 m.

Specimens examined.—BRAZIL. **Rio de Janeiro:** Teresópolis, Parque Nacional da Serra dos Órgãos, próximo à Pedra do Sino, 22°27'33"S, 43°01'39"W, 1840 m, 7 Jan 2011, *P.B. Schwartsburd & J.B.S. Pereira 2316* (SP, VIC). **Paraná:** Campina Grande do Sul, Morro Capivari Grande, 1300 m, 4 Mar 2007, *P.B. Schwartsburd & A.M.X. Lima 1243* (SP, UPCB). **Santa Catarina:** Urupema, Cachoeira que Congela, 1550 m, 5 Feb 2009, *P.B. Schwartsburd & A.C. Corazzini 1969* (LP, RB, SP, VIC).

26. *Hypolepis stuebelii* Hieron., *Hedwigia* 48: 230, t. 10, Figs. 8, 8a, b. 1909, as "*Stübelii*". LECTOTYPE (first step designated by Tryon 1964: 34; second step designated here).—ECUADOR. [**Pichincha**]: Quito, wag nach San Florencio, excurs. nach dem wag von Manabí, s.d., *A. Stübel, Plantae Stübelianae, Filices n. 796* (B!-on 3 sheets [20 0019332, 20 0019333, 20 0019334]; isolectotypes: GH-n.v., US!-1273106). **Figs. 21E–H, 25B.**

Plants terrestrial. *Rhizomes* 3–4.5 mm; *hairs* catenate-acicular, reddish-brown, 2–3(–5) mm long, 20–30-celled. *Fronds* complete not seen, determinate, probably decumbent to scandent, ca. 2.5 m long; *petioles* complete not seen, ca. 75(–?) cm x 6.5–8 mm, purplish proximally, brown above, rugose, the *aculei* straight, (0.2–)0.5–3 mm, abaxially and adaxially hirsute to glabrescent, the *hairs* (*first kind*) acicular, hyaline, erect. 0.15–0.25 mm long, 2–3(–4)-celled; *laminae* complete not seen, probably rhombic elongate, tripinnate-pinnatifid to quadripinnate proximally, ca. 80–150(–?) x (80–)100–130 cm; *rachises* straight, brown proximally, lighter brown above, rugose, aculeate, hirsute-villous abaxially and adaxially, with three kinds of hair, the *first kind of hair* similar to those from petioles, the *second kind of hair* catenate-acicular, hyaline with reddish cross-walls, 0.7–1.5 mm long, 7–15-celled, the *third kind of hair* catenate-glandular, hyaline with reddish cross-walls, 0.3–1 mm long, 5–15-celled; *basal pinnae* ca. 50–65 x 25–50 cm, subequilateral; *costae* with the same indument of the rachises, rarely the *first kind of hair* absent; *costules* abaxially copiously hirsute, with the *first kind of hair* much conspicuous, the *second* and *third kinds* sparse, adaxially with only the *second* and *third kinds of hair*, these sparse; *veins* abaxially hirsute with the *first* and the *third kinds of hair*, adaxially glabrescent; *laminar tissue between the veins* abaxially hirsute, with only the *first kind of hair*, adaxially glabrous; *lamina margins* glabrous; *sori* marginal; *pseudoindusia* proximally greenish, distally hyaline, the *margins* copiously ciliate.

Distribution and ecology.—Jamaica, Hispaniola, Costa Rica (*apud* Moran 1995), Panama (*apud* Moran 1995), Colombia, Venezuela, Ecuador, and Peru

(*apud* Tryon 1964; Tryon and Stolze 1989); from 1000 to 1500 m, but with one collection at 300 m.

Specimens examined.—JAMAICA. Blue Mts., Big Gulley Way, to Vinegar Hill, ca. 3500 ft, 22 May 1916, *J.R. Perkins 1171* (B, K).

HISPANIOLA. **Santo Domingo**: Prov. de Samaná, Sánchez, Road to La Terriena, ca. 300 m, 25 Apr 1930, *E.L. Ekman, Pl. Ind. Occid. H 14753* (BM, K, S-*n.v.*).

COLOMBIA. **Magdalena**: Santa Marta, 1898–1901 [July 1903], *H.H. Smith 2586* (G-2 sheets, K, L, LE, NY-*n.v.*, U, W). **Santander**: Eastern Cordillera, Vicinity of El Roble, ca. 1500 m, 16 Feb 1927, *E.P. Killip & A.C. Smith 19368* (A-*n.v.*, BM, GH-*n.v.*, NY-*n.v.*). “**El Valle**” [**Valle del Cauca**]: Valley of R. Digua, 1150 m, 5 Apr 1939, *A.H.G. Alston 7890* (BM). **Nariño**: near Ricaurte, 1500 m, 7 May 1939, *A.H.G. Alston 8430* (BM).

VENEZUELA. **Lara**: Dtto. Morán, 1500 m, 6 Mar 1983, *F. Ortega et al. 1640* (VEN). **Distrito Capital**: Caracas, 1852, *J.J. Linden s.n., mixtum cum 245 [245b]* (G). **Aragua**: Prope Coloniam Tovar, [seaside of mountain range between Petaquire and the sea, also farther west], 3000 ft, 1858, *A. Fendler 431* (B, K, MO-*n.v.*, YU-*n.v.*).

ECUADOR. **Esmeraldas**: Forest Esmeraldas, s.d., *Hall s.n.* (K). **Pichincha**: Crescit in silv. subtr. vall. Nanegal, May 1907, *A.L. Sodiro s.n.* (U-103406). **Manabi**: *Andium Quitensium*, Manabi, S. Nicolas, Sep 1874, *A.L. Sodiro 24/1* (K). **Chimborazo**: Red Bark Woods, 4500 ft, Aug 1860, *R. Spruce 5704* (BM, K).

Hypolepis stuebelli can be easily recognized by its armed petioles and rachises, hirsute lamina axes, hirsute laminar tissue between the veins abaxially, and ciliate pseudoindusia (Figs. 21E–H). Due to the hirsute laminae, it is similar to *Hypolepis acantha* (endemic to southern and southeastern Brazil) and *H. pedropaloensis* (endemic to the Cordilleras of Colombia). For differentiation between these three taxa, see discussions of *H. acantha* and *H. pedropaloensis*.

Another similar species is *Hypolepis grandis* Lellinger (*Brade & Brade 348* [holotype: US!; isotype: HB!-2 sheets]), which is endemic to Costa Rica and Panama (Lellinger 1985; Moran 1995). *Hypolepis stuebelli* differs from *H. grandis* by glabrous laminar tissue between the veins adaxially (*vs.* adaxially hirsute); in addition, *H. grandis* probably has much larger fronds.

27. *Hypolepis trinationalis* Schwartsb., in Schwartsburd, Boudrie & Cremers, Fern. Gaz. 19(1): 2, Figs. 1, 2A. 2012. TYPE.—Intersection of VENEZUELA, GUYANA, and BRAZIL. Mt. Roraima, ledge of mountain, crevices between rock, 7600 ft, 22 Nov 1973, *R. Persaud 182* (holotype: K!; isotype: BRG-*n.v.*).
Fig. 25C.

Plants terrestrial or from rock crevices. *Rhizomes* ca. 4 mm diam.; *hairs* catenate-acicular, yellowish-brown, 1–2 mm long, 15–20-celled. *Fronds* determinate, erect to arched, 0.4–2 m long; *petioles* 12–60 cm x 2.5–7.5 mm, dark brown proximally, lighter brown above, rugose, inermous, glabrescent abaxially and adaxially; *laminae* ovate to deltate, tripinnate-pinnatifid, 30–140

x 18–120 cm; *rachises* straight, light brown proximally, stramineous above, rugose, inermous, pilose abaxially and adaxially with two kinds of hair, the *first kind of hair* catenate-acicular, hyaline with reddish cross-walls, 0.2–0.5 (–1) mm long, 4–7(–15)-celled, the *second kind of hair* catenate-glandular, hyaline with reddish cross-walls, 0.2–0.5 mm long, 4–7-celled; *basal pinnae* 7–60 x 3–35 cm, equilateral; *costae* pilose abaxially and adaxially, the *hairs* similar to those from rachises; *costules* pilose abaxially and adaxially; *veins* pilose abaxially and adaxially; *laminar tissue between the veins* abaxially with only the *second kind of hair*, adaxially with only the *first kind of hair*; *lamina margins* with both kinds of hair; *sori* marginal; *pseudoindusia* proximally greenish, distally hyaline, the *margins* ciliate.

Distribution and ecology.—Known only from Mount Roraima region, in the intersection of Venezuela, Guyana, and northern Brazil; from 2100 to 2700 m.

Specimens examined.—Intersection of VENEZUELA, GUYANA, and BRAZIL. Mount Roraima, Rondon camp, ledge, 6900 ft, 1 Dec 1927, *G.H.H. Tate 461* (K, NY-*n.v.*); Roraima, base of cliff, Dec 1884, *E.F. im Thurn 303* (BRG-*n.v.*, K); Cima del Roraima-tepui, campamento Hotel Coatí, 5°12'39.12"N, 60°43'51.9"W, 2709 m, 27 Mar 2012, *Y Vivas et al. 3104* (UC-on three sheets [image!]).

Hypolepis trinationalis is endemic to Mount Roraima region, along with *H. guianensis* and *H. krameri*. *Hypolepis trinationalis* is the hairiest of them, unique in having hairs on laminar tissue between the veins abaxially and adaxially, and on lamina margins (for further comparisons, see Schwartsburd *et al.* 2012). *Hypolepis trinationalis* is also similar to *H. viscosa*, due to inermous petioles and rachises, laminae copiously furnished with catenate-acicular and catenate-glandular hairs, and ciliate margins of pseudoindusia. *Hypolepis trinationalis* differs from *H. viscosa* by rachises and costae with shorter catenate-acicular hairs, 0.2–0.5(–1) mm long, 4–7(–15)-celled (*vs.* 1–1.2 mm long, 13–17-celled), costules, veins and laminar margins with both catenate-acicular and catenate-glandular hairs (*vs.* with only catenate-glandular hairs, Fig. 12F), and laminar tissue between veins adaxially with catenate-acicular hairs (*vs.* with catenate-glandular hairs).

28. *Hypolepis viscosa* H. Karst., Fl. Columb. 2: 89, t. 145, habit, t. 146, habit, Figs. 1–9. 1865. LECTOTYPE (designated here).—VENEZUELA. [**Aragual**: Habitat silvas humidias frondosas coloniae Tovar prope Caracas, 1500–2000 m, s.d., *G.K.W.H. Karsten s.n.* (W! [the sheet with rhizome, “*Hypolepis viscosa* Krst. (*Cheilanthes visc.* mss), Colonia Tovar, Caracas”]; isolectotypes: B!-on 2 sheets [20 0075299 and 20 0075301], B!-20 0075300, LE!-2 sheets, W! [ex Herb. Mus. Palat. Vindob.], W! [“*Hypolepis viscosa* Krst., *Cheilanthes* __ K. mss”], W! [ex Herb. Reichenbach 128525], W! [ex Herb. Reichenbach 128526]]. **Figs. 12F, 26.**

Cheilanthes viscosa H. Karst. ex Drège, Bot. Zeit. 12: 855. 1854, *nom. nud. et illeg.*, non *Cheilanthes viscosa* Carmich., Trans. Linn. Soc. London 12(2): 511. 1819, nec *Cheilanthes viscosa* Link, Hort. Berol. 2: 43. 1833.

Hypolepis viscosa H. Karst. ex Mett. in Triana & Planch., Ann. Sci. Nat., Bot., ser. 5, 2: 238. 1864, *nom. nov.* pro *Cheilanthes viscosa* H. Karst. ex Drège, *nom. nud.*

Plants terrestrial. *Rhizomes* 2–3.5 mm diam.; *hairs* catenate-acicular, reddish-brown, 1–2.5 mm long, 15–20 celled. *Fronde* determinate, erect to arched, (40–)80–130(–200?) cm long; *petioles* (15–)25–45 cm x 2.5–6 mm, dark brown proximally, lighter brown above, rugose, inermous, villous abaxially and adaxially with two kinds of hairs, the *first kind of hair* catenate-acicular, hyaline with reddish cross-walls or yellowish, 1–1.2 mm long, 13–17-celled, the *second kind of hairs* catenate-glandular, hyaline with reddish cross-walls or yellowish, 0.2–0.4 mm long, 4–7-celled; *lamina* ovate, tripinnate-pinnatifid to quadripinnate-pinnatifid, (20–)50–100(–150?) x (20–)50–100(–120) cm; *rachises* slightly curved proximally, straight above, golden-brown proximally, stramineous above, rugose, inermous, villous abaxially and adaxially with both kinds of *hair*; *basal pinnae* (10–)25–60 x (6–)15–30 cm, equilateral; *costae* villous abaxially and adaxially with both kinds of *hair*; *costules* villous abaxially and adaxially with only the *second kind of hair*, these similar to those from petioles, rachises and costae but longer, 0.1–0.6 mm long, 2–10-celled; *veins* villous abaxially and adaxially, with only the *second kind of hair*, these shorter, 0.1–0.2 mm long, 2–5-celled; *laminar tissue between the veins* with the same indument pattern that of veins; *lamina margins* with hairs similar to those from veins and the laminar tissue between the veins; *sori* marginal; *pseudoindusia* proximally greenish, distally hyaline, the *margins* ciliate.

Distribution and ecology.—Endemic to the highlands (Cordilleras) of northern Colombia and Venezuela, from 1600 to 3100 m; and in Hispaniola at 1100 m.

Specimens examined.—HISPANIOLA. **Santo Domingo:** Cordillera Central, Prov. Monte Christi, Monción, Lagunas de Cenobi, 1100 m, 21 June 1929, E.L. Ekman, *Pl. Ind. Occid. H 12944* (B, BM, G, K-on 2 sheets, S-n.v.).

COLOMBIA. **Magdalena:** Santa Marta, 1898–1899 [1901?], H.H. Smith 1022 (G, K, L, LE-frag.). **Norte de Santander:** Paramo de Fontibon, Pamplona, 2400 m, 19 Feb 1939, A.H.G. Alston 7134 (AAU-n.v., BM, COL-n.v., F-n.v., MEXU-n.v., MO-n.v., VEN-n.v.). **Antioquia:** Mun. Belmira, vereda El Yerbal, sitio Los Patos, margen izquierda del Río Chico, alto de Sabanazos, 06°35'N, 75°32'W, 3100 m, 24 Apr 1991, D.L. Echeverri et al. 464 (HUA-on 2 sheets). **Cundinamarca and Departamento Capital:** Prov. de Bogotá, 1800 m, 1851–1857, J. Triana s.n. (G). **Quindío:** Andes de Mariquita, 1800 m, Mar 1852, Anonymous [J. Triana?] n. '618', ex Herb. Triana (BM). **Cauca:** Munchique, 2500 m, 21 Apr 1939, A.H.G. Alston 8167 (BM, MO-n.v.). **Nariño:** Cordillera Oriental, 5 km N of Victoria, Río Chingual drainage, 2680–2840 m, 23 Sep 1944, J.A. Ewan 16180 (BM). **Putumayo:** above Sibundoy, 2500 m, 4 May 1939, A.H.G. Alston 8381 (BM, MO-n.v.).

VENEZUELA. **Mérida:** Hautes Andes de Truxillo & de Mérida, 4000–14500 ft, 1842, J.J. Linden 245 (FI-W). **Lara:** Distr. Moran, carretera de Humocaró Bajo



FIG. 26. Distribution of *Hypolepis viscosa*.

via Buenos Aires, 09°36'N, 70°03'W, 1600 m, 13 Nov 1985, *H.H. van der Werff & R. Rivero* 7852 (MO-*n.v.*, U). **Aragua:** Coloniae Tovar, locis subalpinis, Sep 1847, *J.W.K. Moritz* 387 (B, K-2 sheets, FI-W, L, W-2 sheets). **Distrito Capital:** Caracas, Jan–Apr 1842 [July 1842?], *J.J. Linden* 245 (G, G-on 2 sheets, K, OXF).

We here choose as lectotype a material from W (see above), and not from LE (as suggested by Tryon 1963), because we found there a much more complete set of exsiccates.

Hypolepis viscosa is somehow similar to *H. galapagensis*, *H. hostilis*, *H. ellingieri*, and *H. rigescens*, and they probably form a natural group of species. Among them, *H. viscosa* is unique in having inermous petioles and rachises, laminar tissue between the veins adaxially with catenate-glandular hairs, lamina margins with catenate-glandular hairs, and copiously ciliate margins of the pseudoindusia (Fig. 12F). For differentiation with *H. trinationalis*, see its discussion.

NAMES OF UNCERTAIN APPLICATION

Cystopteris fragilis (L.) Bernh. var. *pubescens* Phil., *Anales Univ. Chile* 43: 582. 1873 [1872?]. Rodríguez (1995) synonymized it under *Hypolepis poeppigii* (Kunze) R.A. Rodr. The image of the type at SGO is available online, at JStor web site. However, it is difficult to be sure about the identity of this taxon, by analyzing only the image.

Hypolepis buchtienii Rosenst., *Repert. Spec. Nov. Regni Veg.* 25: 58. 1928. LECTOTYPE (designated by Tryon 1964: 38).—BOLIVIA. Casana in valle Tipuani, 1400 m, 29 Sep 1922, *O. Buchtien* 7014 (S-PA-*n.v.*; isolectotypes: UC, image!, US!-1516428). The isolectotype seen at US is composed by only part of the lamina. It was difficult to tell whether this is a good species or

not. Tryon (1964) placed it as a synonym of *H. hostilis* but it is more similar to *H. rigescens*, due to the golden-brown petioles and short glandular hairs present abaxially on laminar tissue between the veins. It is also somehow similar to *H. galapagensis* and *H. lellingeri*, from Galapagos and Cocos Island, respectively. Another related name is *H. minima*. Further collections are needed to establish its best identity.

Polypodium austriacum Jacq., Obs. Bot. 1: 45. 1764 (*opus non vidi; apud* IPNI). Under this name, Swartz (1806) synonymized Plumier's (1705) *Filix aculeata repens*, which was the base for *Lonchitis repens* L. (= *Hypolepis repens* (L.) C. Presl). In the same work, Swartz (1806) considered *L. repens* to be a valid species. Further citations of *P. austriacum* could not be found.

EXCLUDED NAMES—ACCEPTED NAMES IN BOLDFACE

Hypolepis aquilinaris (Fée) H. Christ, Bull. Herb. Boissier, ser. 2, 1: 636. 1901. *Cheilanthes aquilinaris* Fée, Crypt. Vasc. Brésil 2: 37, t. 91, Fig. 1. 1873. LECTOTYPE (designated by Schwartsburd *et al.* 2014: 110).—BRAZIL. **Rio de Janeiro**: Brasilia fluminensis, s.d., A.F.A. Glaziou 5330 (B!-20 0074529; isolectotypes: HBG-n.v., K!-000640338, P-4 sheets, n.v.) = ***Pteridium arachnoideum*** (Kaulf.) Maxon subsp. ***arachnoideum***

Hypolepis brasiliiana (C. Presl) Kuhn, Festschr. Jubil. Königstädt. Realsch. Berlin: 347 (Chaetopterides: 27). 1882. *Aspidium brasilianum* C. Presl in J.S. Presl & C. Presl, Delic. Prag. 1: 176. 1822, *nom. rej.* *Cystopteris brasiliiana* (C. Presl) C. Presl, Tent. Pterid.: 93. 1836. LECTOTYPE (designated by Schwartsburd and Prado 2011a: 234).—BRAZIL. **Rio de Janeiro**: Ad Rio Janeiro Brasilia legit def. [In via ad S. João Marcos ad Engenho da Varge, Capit. Rio de Janeiro], [Mar 1818], J.B.E. Pohl s.n. [3794] (PRC!; probable isolectotype: W!) = ***Pteridium arachnoideum*** (Kaulf.) Maxon subsp. ***arachnoideum***

Hypolepis coniiifolia (C. Presl) C. Presl, Tent. Pterid.: 162. 1836. *Aspidium coniiifolium* C. Presl in J.S. Presl & C. Presl, Delic. Prag. 1: 175. 1822. TYPE.—BRAZIL. **Rio de Janeiro**: Ad Rio Janeiro Brasilia legit. [Engenho da Varge, Cap. Rio de Janeiro], [Mar 1818], J.B.E. Pohl s.n. [3833] (PRC!, W!-3 sheets) = ***Adiantopsis chlorophylla*** (Sw) Fée s.l.

Hypolepis gardneri (Gardner) Hook., Sp. Fil. 2: 74. 1852, *nom. sup.* = ***Adiantopsis monticola*** (Gardner) T. Moore.

Hypolepis incisa (Kunze ex Mett.) C. Chr., Index Filic.: 371. 1905. ***Cheilanthes incisa*** Kunze ex Mett., Farngett. 4 (Cheilanthes): 44, no. 65, t. 3, Figs. 28–31. 1859. *Adiantopsis incisa* Kunze ex T. Moore, Index Fil. (T. Moore): 243.

1857–1862, *nom. nud.* NEOTYPE (designated by Ponce *et al.* 2007: 144).—BRAZIL. **Rio de Janeiro:** Teresópolis, Grotão, 800 m, 13 June 1940, *A.C. Brade 16288* (RB, image!; isoneotype: SI, image!).

Hypolepis juergensii Rosenst. ex Schwartsb. & J. Prado, *Acta Bot. Bras.* 28(2): 218. 2014, *nom. nud.*

Hypolepis monticola (Gardner) Hook., *Sp. Fil.* 2: 74, 114, t. 92B, Figs. 1, 2. 1852. *Cheilanthes monticola* Gardner in Hooker, *Icon. Pl.* 5: t. 487: 1842.

Adiantopsis monticola (Gardner) T. Moore, *Index Fil.* (T. Moore): 18. 1857–1862. TYPE.—BRAZIL. **Goiás:** Province of Goyaz, on the perpendicular face of Schistose rocks, in a deep narrow ravine near the summit of the Serra de Natividade, Jan 1840, *G. Gardner, Herb. Bras.* 3557 (K?, W!). See also Link-Pérez *et al.* (2011).

Hypolepis neblinae A.R. Sm. ex Navarr. in O. Hokche, P.E. Berry & O. Huber, *Nuevo Cat. Fl. Vasc. Venezuela:* 123. 2008, *nom. nud.*

Hypolepis nigrescens (Schrad.) Nees, *nom. rej.* Schwartsburd and Prado (2009) proposed the rejection of this name, favouring *H. nigrescens* Hook., which was later sanctioned (Brummit 2011).

Hypolepis nigricans Hook., *Sp. Fil.* 2: 69. 1852. Misspelling of ***Hypolepis nigrescens*** Hook., *nom. cons.*

Hypolepis paupercula (Kunze) Hook., *Sp. Fil.* 2: 73. 1852. **Adiantopsis paupercula** (Kunze) Fée *vide* Proctor (1989).

Hypolepis pedata Hook., *Sp. Fil.* 2: 73, t. 92A, Figs. 1, 2, 1852. **Adiantopsis pedata** (Hook.) T. Moore. TYPE.—JAMAICA. s.d., *W. Purdie s.n.* (BM-n.v., K, image!).

Hypolepis poeppigii (Kunze) Mett. ex Maxon in Moldenke, *Lilloa* 6: 289. 1941, as “Kuntze”. Invalid combination, see discussion in ***Hypolepis poeppigii*** (Kunze) R.A. Rodr.

Hypolepis radiata (L.) Hook. **Adiantopsis radiata** (L.) Fée.

Hypolepis repens (L.) C. Presl var. *selloana* Klotzsch ex Baker in Martius & Eichler, *Fl. Bras.* 1(2): 384. 1870, as “var. γ *Selloana*”. *Cheilanthes sellowiana* Klotzsch ex C. Presl, *Tent. Pterid.*: 160. 1836, *nom. nud.* *Hypolepis sellowiana* Klotzsch ex Schlecht., *Linnaea* 14: 286. 1840, as “*Selloviana*”, *nom. nud.* LECTOTYPE (designated here).—BRAZIL. Brasilia,

- [1837], *Sellow s.n.* (K!; isolectotypes: B!-3 sheets, LE!-2 sheets) = ***Tryonia myriophylla*** (Sw.) Schuettp., J. Prado & A.T. Cochran
- Hypolepis repens* (L.) C. Presl var. *stolonifera* (Fée) M. Lisboa, Anais da Escola de Minas de Ouro Preto 29: 49. 1954 [1956]. Invalid combination.
- Hypolepis rugosula* (Labill.) Hook., Sp. Fil. 2: 68. 1852, as “*rugulosa*”, *nom. illeg.*, non *Hypolepis rugosula* (Labill.) J. Sm. (Bot. Mag. 3rd ser., 2: 8. 1846) = ***Paesia rugosula*** (Labill.) Kuhn.
- Hypolepis sellowiana* Klotzsch ex Schlecht., Linnaea 14: 286. 1840, as “*Selloviana*”, *nom. nud.* = ***Tryonia myriophylla*** (Sw.) Schuettp., J. Prado & A.T. Cochran
- Hypolepis serrata* Fée, Crypt. Vasc. Brésil 1: 53, t. 13, Fig. 3. 1869. LECTOTYPE (designated by Ponce *et al.* 2007: 144).—BRAZIL. [Rio de Janeiro]: s.d., A.F.A. Glaziou 2336 (K-n.v.; isolectotypes: B, image!, HBG-n.v., P-n.v.). = ***Cheilanthes incisa*** Kunze ex Mett.
- Hypolepis spectabilis* (Kaulf.) Link, Fil. Sp.: 65. 1841 (*apud* Moore 1957–1862, and IPNI). *Cheilanthes spectabilis* Kaulf., Enum. Filic.: 214. 1824. TYPE.—BRAZIL. Habitat in Brasilia, s.d., *A. Chamisso s.n.* (LE!) = ***Adiantopsis chlorophylla*** (Sw.) Fée *s.l.*
- Lonchitis tenuifolia* Beyrich ex C. Presl, Tent. Pterid.: 93. 1836, *nom. illeg. et nud.* (non *Lonchitis tenuifolia* G. Forst., 1786). *Cystopteris leptophylla* C. Presl, Tent. Pterid.: 93. 1836, *nom. nov. pro Lonchitis tenuifolia* Beyrich ex C. Presl. = ***Cheilanthes incisa*** Kunze ex Mett.

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APPENDIX 1: LIST OF ACCEPTED NAMES

1. *Hypolepis acantha* Schwartsb.
2. *Hypolepis bogotensis* H. Karst.
3. *Hypolepis crassa* Maxon
4. *Hypolepis flexuosa* Sodiro
5. *Hypolepis galapagensis* Schwartsb. & J. Prado
6. *Hypolepis* × *glabra* H. Karst. ex Schwartsb. & J. Prado
7. *Hypolepis guianensis* Klotzsch
8. *Hypolepis hostilis* (Kunze) C. Presl
9. *Hypolepis krameri* Schwartsb., Boudrie & Cremers
10. *Hypolepis lellingeri* A. Rojas
11. *Hypolepis melanochlaena* A.R. Sm.
12. *Hypolepis mitis* Kunze ex Kuhn
13. *Hypolepis nigrescens* Hook.
14. *Hypolepis nuda* Mett.
15. *Hypolepis obtusata* (C. Presl) Kuhn
16. *Hypolepis parallelogramma* (Kunze) C. Presl
17. *Hypolepis* × *paulistana* Schwartsb. & J. Prado
18. *Hypolepis pedropaloensis* Schwartsb. & J. Prado
19. *Hypolepis poeppigii* (Kunze) R.A. Rodr.
20. *Hypolepis pteroides* Mett.
21. *Hypolepis repens* (L.) C. Presl
22. *Hypolepis rigescens* (Kunze) T. Moore
23. *Hypolepis rugosula* (Labill.) J. Sm.
 - 23a. *Hypolepis rugosula* subsp. *poeppigiana* (Mett.) Schwartsb. & J. Prado
 - 23b. *Hypolepis rugosula* subsp. *pradoana* Schwartsb.
24. *Hypolepis scandens* M. Kessler & A.R. Sm.
25. *Hypolepis stolonifera* Fée
 - 25a. *Hypolepis stolonifera* Fée var. *stolonifera*
 - 25b. *Hypolepis stolonifera* var. *delasotae* Arana, Yañez & Schwartsb.
 - 25c. *Hypolepis stolonifera* var. *nebularis* Schwartsb.
26. *Hypolepis stuebelii* Hieron.
27. *Hypolepis trinationalis* Schwartsb.
28. *Hypolepis viscosa* H. Karst.

APPENDIX 2: LIST OF ALL NAMES THAT APPLY TO SOUTH AMERICAN *HYPOLEPIS* (AND COCOS ISLAND)

The numbers in parentheses refer to the taxa numbers assigned in the taxonomic treatment and listed in Appendix 1. Accepted names are in boldface.

Cheilanthes aculeata (Spreng.) Kaulf. (21)

Cheilanthes hostilis Kunze (8)

- Cheilanthes obtusata* C. Presl (15)
Cheilanthes parallelogramma Kunze (16)
Cheilanthes radula Kunze ex Hook. & Baker (16)
Cheilanthes repens (L.) Kaulf. (21)
Cheilanthes rigescens Kunze (22)
Cheilanthes scabra H. Karst. ex Hook. & Baker (16)
Cheilanthes viscosa H. Karst. ex Drège (28)
Cystopteris fragilis (L.) Bernh. var. *pubescens* (see Names of Uncertain Application)
Dennstaedtia rubicaulis H. Christ (13)
Dicksonia aculeata Spreng. (21)
Dryopteris punctata (Thunb.) C. Chr. subsp. *rugosula* (Labill.) C. Chr. (23)
Dryopteris punctata (Thunb.) C. Chr. var. *rugosula* (Labill.) Domin (23)
Dryopteris sturmii (Phil.) C. Chr. (19)
Filix aculeata repens Plum. (21)
Hypolepis acantha Schwartsb. (1)
Hypolepis aculeata (Spreng.) J. Sm. (21)
Hypolepis bogotensis H. Karst. (2)
Hypolepis bogotensis H. Karst. ex Mett. (2)
Hypolepis buchtienii Rosenst. (see Names of Uncertain Application)
Hypolepis chilensis Fée (19 p.p., 23a p.p.)
Hypolepis crassa Maxon (3)
Hypolepis delicatula Fée (21)
Hypolepis dicksonioides Fée (21)
Hypolepis flexuosa Sodiro (4)
Hypolepis galapagensis Schwartsb. & J. Prado (5)
Hypolepis* × *glabra H. Karst. ex Schwartsb. & J. Prado (6)
Hypolepis guianensis Klotzsch (7)
Hypolepis hauman-merckii Hicken (23a)
Hypolepis hispaniolica Maxon (13)
Hypolepis hostilis (Kunze) C. Presl (8)
Hypolepis hostilis (Kunze) C. Presl var. *major* Hook. (10)
Hypolepis inermis (Hook.) H. Christ (4)
Hypolepis krameri Schwartsb., Boudrie & Cremers (9)
Hypolepis lellingeri A. Rojas (10)
Hypolepis melanochlaena A.R. Sm. (11)
Hypolepis microchlaena J. Mickel & Beitel (see 22)
Hypolepis minima M. Kessler & A.R. Sm. (22)
Hypolepis mitis Kunze ex Kuhn (12)
Hypolepis nigrescens Hook. (13)
Hypolepis nuda Mett. (14)
Hypolepis obtusata (C. Presl) Kuhn (15)
Hypolepis parallelograma (Kunze) C. Presl (16)
Hypolepis parviloba Fée (8)
Hypolepis* × *paulistana Schwartsb. & J. Prado (17)
Hypolepis pedropaloensis Schwartsb. & J. Prado (18)

- Hypolepis poeppigiana* Mett. (23a)
Hypolepis poeppigii (Kunze) Mett. ex Maxon (19)
Hypolepis poeppigii (Kunze) R.A. Rodr. (19)
Hypolepis pteroides Mett. (20)
Hypolepis purdieana Hook. (15)
Hypolepis repens (L.) C. Presl (21)
Hypolepis repens (L.) C. Presl var. *hostilis* (Kunze) Baker (8)
Hypolepis repens (L.) C. Presl var. *inermis* Hook. (4)
Hypolepis rigescens (Kunze) T. Moore (22)
Hypolepis rubiginosopilosula Lellinger (22)
Hypolepis rugosula (Labill.) J. Sm. (23)
Hypolepis rugosula (Labill.) J. Sm. subsp. ***poeppigiana*** (Mett.) Schwartsb. & J. Prado (23a)
Hypolepis rugosula (Labill.) J. Sm. subsp. ***pradoana*** Schwartsb. (23b)
Hypolepis rugosula (Labill.) J. Sm. var. *poeppigii* (Kunze) C. Chr. (19)
Hypolepis rugosula (Labill.) J. Sm. var. *poeppigii* (Kunze) C. Chr. & Skotts. (19)
Hypolepis rugosula (Labill.) J. Sm. var. *typica* C. Chr. & Skotts. (23)
Hypolepis scandens M. Kessler & A.R. Sm. (24)
Hypolepis stolonifera Fée (25)
Hypolepis stolonifera Fée var. ***delasotae*** Arana, Yañez & Schwartsb. (25b)
Hypolepis stolonifera Fée var. ***nebularis*** Schwartsb. (25c)
Hypolepis stolonifera Fée var. ***stolonifera*** (25a)
Hypolepis stuebelii Hieron. (26)
Hypolepis trinationalis Schwartsb. (27)
Hypolepis viscosa H. Karst. (28)
Hypolepis viscosa H. Karst. ex Mett. (28)
Lonchitis repens L. (21)
Phegopteris poeppigii (Kunze) Fée ex Gay (19)
Phegopteris poeppigii (Kunze) Fée ex Gay var. *hirsuta* Phil. (23a)
Phegopteris punctata (Thunb.) Mett. var. *rugosula* (Labill.) Hillebr. (23)
Phegopteris rugosula (Labill.) Fée (23)
Phegopteris sturmii Phil. (19)
Plecosorus peruvianus Fée (15)
Polypodium austriacum Jacq. (see Names of Uncertain Application)
Polypodium fulvescens Hook. & Grev. (15)
Polypodium poeppigii Kunze (19)
Polypodium punctatum Thunb. f. *rigescens* (Kunze) Baker (22)
Polypodium punctatum Thunb. var. *rugosulum* (Labill.) Hook. & Baker (23)
Polypodium rugosulum Labill. (23)

APPENDIX 3: LIST OF EXSICCATAE

The numbers in parentheses refers to the taxa numbers assigned in the taxonomic treatment and listed in Appendix 1. Collection numbers in boldface are types. Question marks represent unreadable names or initials not found.

- Arbeláez, A.L. *et al.*: 371 (21)
 Acebey, A.: 616 (8)
 Acevedo, D.: 84 (21)
 Acosta-Arteaga, C.E. *et al.*: 579 (2)
 Almeida, T.E. *et al.*: 687 (1)
 Alston, A.H.G.: 7134 (28); 7890 (26); 7938 (26); 8167 (28); 8381 (28); 8430 (26)
 Alston, A.H.G. & Lutz, (A.?): 278 (21)
 André, E.: 1069-bis (22)
 Andreas, C.H.: 473 (23a); 521 (18); 856 (23a)
 Appun, C.: 1349 (22)
 Atehortúa, L. *et al.*: 1268 (13)
 Bach, K.: 1202 (13)
 Bach, K. *et al.*: 1291 (16); 1522 (13); 1596 (13); 1700 (16)
 Badini, J.: 312 (22)
 Barclay, G.W.: **2201** (10); *s.n.* (10)
 Barkly, H. & Barkly, (E.H.T.?): *s.n.* (13)
 Barrier, S.: 2971 (21)
 Barros, I.C.L. *et al.*: 13 (21); *s.n.* (21); *s.n.* (21)
 Barry, A.M.: P 65 (13)
 Beck, G.: 1435 (4); 9243 (16); 21293 (13)
 Behn, K.: *s.n.* (19)
 Belange: 467 (21)
 Berge, E.: 46 or 7946 (13)
 Bernardi, L.: 5863 (21)
 Bertero, M.: 1664 (23a); 1775 (19); *s.n.* (23a)
 Beyrich, (?): *s.n.* (see Excluded Names)
 Billiet, F. *et al.*: 6348 (8)
 Bischler, H.: 1779 (13); 1972 (21); 2053 (22)
 Bittencourt, S.: *s.n.* (25a); *s.n.* (25a)
 Blanchet, J.S.: 753 (22); 2460 (1); 2497 (22)
 Boelcke, O.: 382 (19)
 Bono, J.: 5702 (16)
 Boudrie, M.: 2807 (21); 3210 (21)
 Box, H.E.: 264 (21)
 Brade, A. & Brade, A.C.: **348** (type of *Hypolepis grandis* — see 26)
 Brade, A.C.: 8273 (1); 8596 (1); 9917 (25a); 9921 (see Names of Uncertain Application); 14497 (25c); 15101 *p.p.* (25a); 15540 (23b); **16288** (see Excluded Names); 17196 (12); 18882 (23b); 19355 (22); 20288 (23b); *s.n.*, ex R 18517 (1); *s.n.*, ex R 21047 (23b); *s.n.*, ex R 21829 (25a)
 Brade (A.C.): 354, Rosenst. Fil. Costar. Exsic. 235 (14)
 Brade, A.C. & Araújo, S.: 19100 (23b)
 “Bredger”?: 562 (23a)
 Britton, N.L. & Cowell, J.F.: 320 (21)
 Britton, N.L. *et al.*: 1306 (21)
 Broadway, W.E.: 3882 (21); 5512 (21)
 Brown, A.: 1735 (19)

- Brown, R.?: *s.n.* (23a)
 Brudgel, (?) & Osorio, (?): 813 (23a)
 Buchtien, O.: 10 (21); "11" (21); 294 (16); 296 (22); 1134 (21); **7014** (see Names of Uncertain Application); *s.n.*, Rosenst. Fil. Bol. Exsicc. 41 (4); *s.n.* (19 *p.p.*); *s.n.* (23a); *s.n.* (23a)
 "Buehenau"?, (?): *s.n.*, ex Herb. Martii (23a)
 Bueno, R.M.: 4473 (25a); *s.n.* (23b); *s.n.* (25a)
 Burchell, W.J.: 1914 (1); 1916 (1); **2360** (12)
 Cabrera, A.L.: 3029 (19)
 Cabrera, A.L. & Fabris, H.A.: 17455 (19)
 Cabrera, A.L. & Frangi, J.: 20603 (19)
 Cabrera, A.L. & Job, M.M.: 227 (23a)
 Cabrera, A.L. & Kiesling, R.: 20130 (19)
 Cabrera, A.L. *et al.*: 21233 (19); 21239 (19); 24186 (19)
 Campos Porto, P.: 3107 (25a)
 Capurro, R.: 482 (25b); 1275 (25b); **1354** (25b)
 Carmichael: *s.n.* (13)
 Castellanos, A.: 25697 (25a)
 Cazalet, P.C.D. & Pennington, T.D.: 5464 (4); 7707 (8)
 Cervi, A.C. & Acra, L.A.: 2564 (25a)
 Chamisso, C.A. de: *s.n.* (19)
 Charpin, A. & Eskuche, U.: 20503 (19)
 Charpin, A. & Novara, L.: 22922 (19)
 Chiapella, J. & Puntieri, J.: *s.n.* (23a)
 Christenhusz, M.J.M. & Bollendorff, S.: 2690 (21)
 Clute, W.N.: 110 (13)
 Condack, J.P.: 513 (23b)
 Condack, J.P.S. & Cortines, E.: 293 (25a)
 Cooley, G.R. *et al.*: 12635 (21)
 Correl, D.S.: 6165 (21)
 Cremers, G. *et al.*: 9261 (21); 10293 (21); 10345 (21); 12994 (21)
 Cruckshanks, A.: *s.n.* (15)
 Cueto, D.: *s.n.* (19)
 Cuming, H.: 149 (23a); **271** (13; but = *Dennstaedtia scandens*); 635 (19); *s.n.* (19); *s.n.* (23a)
 Cunningham, R.O.: 26 (23a)
 Daniëls, A.G.H. & Jonker, F.P.: 1253 (21)
 Díaz, G. *et al.*: 45 (16)
 Diem, J.: 728 (23a)
 Dittrich, V.A.O. & Kozera, C.: 295 (25a)
 Dombrowski, L.T.: 5105 (25a)
 Donell, C.A.O': 4663 (19)
 Dudley, T.R.: 13277 (13)
 Duparquier, L.: *s.n.* (1 *p.p.*; 22 *p.p.*)
 Dusén, P.K.H.: 10222 (22); 14740 (22)
 Dutra, J.: 261 *p.p.* (12); 261 *p.p.* (25a)

- Eberhardt, D. et al.: 33 (16); 75 (22); 151 (22)
 Echeverri-V., D.L.: 401 (22); 464 (28)
 Eggers, B.: 865 (21); Fl. Exs. Ind. Occid. 551 (21)
 Ekman, E.L.: Pl. Ind. Occid. H 579 (14); Pl. Ind. Occid. H 5444 (21); Pl. Ind. Occid. 6968 (13); Pl. Ind. Occid. H 7390 (13); **Pl. Ind. Occid. H. 7503** (14); Pl. Ind. Occid. H 7559 (13); Pl. Ind. Occid. H 7824 (13); Pl. Ind. Occid. H 9815 (13); Pl. Ind. Occid. H 11541 (21); Pl. Ind. Occid. H 12706 (13); Pl. Ind. Occid. H 12944 (28); Pl. Ind. Occid. H 14753 (26); Pl. Ind. Occid. ex Itin. Ekman 16086 (13); Pl. Itin. Regnell. III 1642 (13)
 Elwes, H.J.: *s.n.* (23a)
 "Enrundi" (?): 56 (11)
 Engel, F.: 103b (14); **171** (14); *s.n.* (14)
 Engelmann, R.A.: RE 272 (25a)
 "Escherholz" (?): *s.n.* (23a)
 Eskuche: 115 (19)
 Estrada, A.: 1348 (13)
 Eugênio, J.: 38 (21)
 Evans, A.M.: 3410 (21)
 Evrard, C.: 10627 (23a)
 Ewan, J.A.: 16180 (28)
 Fabris, H.A.: 3461 (19)
 Fay, A. & Fay, L.: 2519 (13); 2527 (13); 2531 (13); 2590 (16); 2889 (24); 4049 (16)
 Fendler, A.: 64 (28); 66 (16); 148 (21); 431 (26)
 Feuerer, T.: 9349e (4)
 Flora Falcón (HW, BV): 921 (21)
 Flora Falcón (HW, TR): 700 (16)
 Forster, G.: *s.n.* (type of the genus)
 Forzza, R.C. *et al.*: 3412 (23b)
 Fraser: *s.n.* (22)
 Fuertes, M.: 1335b (13)
 Funck, N. & Schlim, L.J.: 492 (16)
 Garaventa, A.: 220 (cultivated; *Hypolepis* cf. *tenuifolia*); 1258 (cultivated; *H. cf. tenuifolia*)
 Gardner, G.: **199** (12); "**551**" [199] (12); "**661**" [199] (12); **Herb. Bras. 3557** (see Excluded Names)
 Gaudichaud, C.: "**31**" (19 *p.p.*, 23a *p.p.*; = *Hypolepis poeppigii*); *s.n.* (19 *p.p.*, 23a *p.p.*; = *H. poeppigii*)
 Gay, C.: *s.n.* (19 *p.p.*, 23a *p.p.*; = *Hypolepis rugosula* subsp. *poeppigiana*).
 Gentry, A. *et al.*: 19308 (13)
 Gibby, M. & Barrett, (P.): 38 (15); 44 (15)
 Gillies: *s.n.*, "N. 3" (19)
 Glaziou, A.: 2154 (1); **2336** (see Excluded Names); 2380 (12); **4435** (25a); 5328 (1); **5329** (25a; material at K seems *Hypolepis mitis*); **5330** (see Excluded Names); 7021 (25c)
 Gómez-P., L.D.: 2180 (4)
 González, I.: 55 (13)

- González, V. & Conzatti, C.: 737 (21)
 Granville, J.J. de & Crozier, F.: 13681 (21)
 Granville, J.J. de *et al.*: 3958 (8); 6138 (8); 8631 (21)
 Gray, J.: 16 (21)
 Gusinde, M.: 460 (23a)
 Haenke, T.P.X.: *s.n.* (15); *s.n.* (see Excluded Names); *s.n.* (see Excluded Names)
 Hahn, L.: 61 (21)
 Hall, (?): *s.n.* (26)
 Hamilton, A.C. & Holligan, P.M.: 547 (4)
 Handro, O.: 2185 (12)
 Harris, W.: 7206, Fl. Jamaicensis 660 (13)
 Hart, J.H.: C 252 (21)
 Harvey, W.H.: "882" (19)
 Hassler, E.: 11620 (21)
 Hauman-Merck, M.: *s.n.* (23a); *s.n.* (23a)
 Henkel, T.W. *et al.*: 4219 (21)
 Hennipman, E. *et al.*: 6839 (13)
 Herminier, F.J.L': 63 (21); *s.n.* (21 – anno 1864); *s.n.* (21 – anno 1862); *s.n.* (21);
s.n. (21)
 Herzog, B.: H 425 (4)
 Hess, W.E.: 326 (21)
 Hicken, C.M.: 51 (23a); *s.n.* (23a)
 Hirai, R.Y. *et al.*: 674 (12)
 Hoff, M.: 7828 (21)
 Hollermayer, A.: *s.n.*, Werdermann Pl. Chilensis n. 1880 (23a); *s.n.*,
 Werdermann Pl. Chilensis n. 1940 (23a)
 Holm, R.W. & Iltis, H.H.: 501 (4)
 Holm-Nielsen, L. & Jaramillo, J.: 28361 (3)
 Holm-Nielsen, L. *et al.*: 4267 (22); 5646 (4); 5902 (4); 6249 (*aff.* 11); 6502 (4)
 Hosseus, C.C.: 113 (23a)
 Huaylla, H. & Guachalla, I.: 635 (19)
 Husnot, T.: Pl. des Antilles 285 (21)
 "Inray" (?), D.: 29 (21)
 Jameson, W.: *s.n.* (26)
 Jaramillo Mejía, R. *et al.*: **2665** (18)
 Jenman, G.S.: 30 (14); 71 (13); 1401 (8); *s.n.* (8); *s.n.* (21)
 Jiles, C.: 576 (23a)
 Jiménez, I.: 294 (13); **972** (22); 2418 (19)
 Jiménez, I. & Moguel, A.: 1454 (24); 1462 (22); 1604 (24)
 Jiménez, I. *et al.*: 2781 (15); 2802 (15); 4712 (19); 4724 (19)
 Job, M.M.: 1394 (19)
 Jörgensen, P.: 1502 (19)
 Junge, C.: 32 (23a); 40 (23a)
 Jürgens, C.: **352**, *Rosenst. Fil. Austrobras. exsic. II* 77 (23b; see also Names of
 Uncertain Application)
 Kalbreyer, W.: 1111 (14)

- Krapovickas, A. & Cristóbal, C.L.: 17459 (19)
 Karsten, G.K.W.H.: *s.n.* (6); *s.n.* (13); *s.n.* (14); *s.n.* (16); *s.n.* (16); *s.n.* (22); *s.n.* (28)
 Kessler, M. & Kelschbach, M.: 270 (4)
 Kessler, M. *et al.*: 6776 (4); 7187 b (24); 7191 (4); 7300 (16); 7301 (13); 7355 (24); 7570 (16); 8795 (8); 9068 (24); 9179 (4); 9331 (4); 9941 (22); 10078 (22); 10119 (13); 10256 (22); 10580 (4); 11262 (16); 11701 (4); 11284 (13); 11462 (16); **12187** (24); 13054 (16); 13186 (13)
 Killip, E.P.: 5040 (21)
 Killip, E.P. & Smith, A.C.: 19368 (26)
 King, Cap.: *s.n.* (23a)
 Kohaut, F.: *s.n.*, **Sieber Fl. Martin. no. 373** (21)
 Køie, M.: 4681 (6)
 Kramer, K.U. & Proctor, G.R.: 1783 (13)
 Krause, (?): *s.n.*, ex Herb. Fil. Christensen 2897 (23a)
 Kunkel, E.: '6654' or '550' (22)
 Kunkel, E?: **2963** (type of "*f. patagonica*"; 23a)
 Labiak, P.H. *et al.*: 3856 (25b); 4269 (25a); 4271 (25a); 4291 (25a); 4318 (25a); 4324 (25a); 4358 (25a); 4370 (25a); 4383 (12); 4419 (25a); 4426 (12); 4429 (25a); 4431 (25c); 4433 (25c); 4436 (25c); 4478 (12); 4482 (25a); 4488 (25a); 4494 (25a); 4521 (12); 4545 (12); 4778 (23b)
 Labillardière, J.J.H. de: *s.n.* (23)
 Langsdorff, G.H. von: *s.n.* (1); *s.n.* (21)
 Langsdorff, G.H. von & Riedel, L.: 99 (22); 191 (22)
 Lechler, W.: 2094 (15); **Pl. Chil. 194** (19 *p.p.*, 23a *p.p.*; = *Hypolepis rugosula* subsp. *poepigiana*); **Pl. Pervuvian. 2152** (20)
 Legname, P.R. & Cuzzo, A.R.: 5090 C (19)
 Lehmann, F.C.: 4441 (4); 6952 (22); *s.n.*, "XVII" (20)
 Leite, P.: *s.n.* (25a); *s.n.* (25a)
 Lellinger, D. & Sota, E.R. de la: 439 (21); 734 (22); 772 (21); 921 (16)
 Leonard, E.C.: **4796** (13)
 Leonard, E.C. & Leonard, G.M.: 15169 (13)
 Levinge, H.C.: *s.n.* (15)
 Liesner, R. & González, A.: 9335 (8); 9988 (16)
 Lillo, M.: *s.n.* (19)
 Lindberg, G.: **587** (12; but = *Hypolepis stolonifera* var. *stolonifera*)
 Linden, J.J.: 245 (28); 245 (28); mixtum cum 245, "245b" (26); "**515**" (13); **516** (13); *s.n.* (8).
 Lindig, A.: 96 (13); **224** (2); 328 (21); 359 (18)
 Lindman, C.A.M.: *s.n.*, Imae. Regenllian. Exped. 171321 (25a)
 Looser, G.: 3132 (cultivated; *Hypolepis* cf. *tenuifolia*)
 Lopes, M.S. & Pietrobon-Silva, M.R.: 216 (21); 326 (21); 473 (21); 510 (22)
 Luschnath, B.: **109** (see Excluded Names; syntype of *Hypolepis repens* var. *selloana*, but = *H. rigescens*); *s.n.* (1).
 Maguire, B. *et al.*: 39196 A (22)
 Marie, E.: *s.n.* (21)

- Martínez, O. & Prado, J.: 1897 (19)
Martins, P. & Castro, A.J.: *s.n.* (21)
Martius, C.F.P. von: Herb. Fl. Bras. 382 (1); **Herb. Fl. Bras. 383** (22); *s.n.* (1)
Mathews, A.: 968 (15)
Matos, F.B. & Santos, R.R.: 1522 (21)
Matos, F.B. & Weiss, G.: 1123 (1)
Mattos, J.: 2734 (25a)
Mattos, J. *et al.*: 20053 (25a)
Maurmann, (?): *s.n.* (25a)
Mazé: *s.n.*, "21129" (21)
Meier, W.: 13087 (16)
Meier, W. & Molina, P.: 9223 (21)
Mejía P., F.: 77 (13); 143 (28)
Méndez-A., C.M. *et al.*: '71' (22)
Mexia, Y.: 8149 (16)
Meyer, F.G.: 9536 (23a)
Meyer, T.: 18790 (19)
Mickel, J.T.: 3248 (4)
Miers, J.: 222 (12)
Miranda, F. & Fuentes, A.: 84 (13)
Montero, G.: 3696 (23a); 12011 (23a)
Moritz, J.W.K.: 15 (16); 387 (28); 388 (16); *s.n.* (16); *s.n.* (16); *s.n.* (28); *s.n.* (28)
Morrison, J.L.: 17569 (23a)
Mosén, H.: 18, ex Herb. Bras. Regnell. Mus. Bot. Stock. 2066 (25a)
Mostacero, J. *et al.*: 491(16)
Murillo, J. & Foreno, D.: 3595 (16)
Murillo, J. & Méndez, C.: 3395 (16)
Murray, H.B.: 08 (21)
Mutchnick, P. *et al.*: 255 (8)
Münch, G.: **35** (11); 158 (13); **s.n.** (11)
Mynssen, C.M.: 227 (12); 259 (12)
Mynssen, C.M. *et al.*: 1114 (12)
Neill, H.O': *s.n.* (21)
"Nurett" (?), P.: 53 (23a)
Ortega, F. & González, A.: 389 (8)
Ortega, F. *et al.*: 1631 (16); 1640 (26); 3016 (28)
Palací, C. *et al.*: 892 (19)
Palmer, E.J.: 27455 (21)
Parra, O.: 106 (23a)
Pedersen, T.M.: 14329 (23a)
Pennell, F.W.: 4464 (22)
Pereira, J.B.S. & Marinero, F.: 282 (25a)
Perkins, J.R.: 1171 (26)
Perrolet: *s.n.* (21)
Persaud, R.: **182** (27)
Philippi, R.A.: *s.n.* (19); *s.n.* (23a)

- Philippi, (R.A. or F.): "3" (23a); *s.n.* (19); *s.n.* (23a); *s.n.* (23a)
 Pichi-Sermolli, R.E.G.: 4791 (4)
 Pirotbom-Silva, M.R.: 4397 (21); 4485 (21); 4514 (21)
 Pirotbom-Silva, M.R. & Santiago, A.C.P.: 4847 (21)
 Pittier, H.: 376 (14); 825 (14); 4173 (14); 13849 (11)
 Pittier, H.? ("H.P."): 16237 (10)
 Pivetta, J.: *s.n.* (25a)
 Plumier, C: *s.n.*, ex Herb. Tournefort 5228 (21)
 Poeppig, E.: "220" (16); *diar.* 182, Col. pl. Chil. I. n. 264 (19); *diar. n.* 1957 (8); *s.n.* (16)
 Pohl, J.B.E.: 3794 (see Excluded Names), 3833 (see Excluded Names); *s.n.* (see Excluded Names); *s.n.* (see Excluded Names); *s.n.* (see Excluded Names); *s.n.*? (see Excluded Names)
 Polastry, B.: *s.n.* (23a)
 Porto, C.: 1555 (12)
 Portugal, A. *et al.*: 285 (16)
 Prado, J. *et al.*: 1966 (1); 2057 (12); 2062 (12)
 Puntieri, J.: 396 (23a)
 Purdie, W.: *s.n.* (4); *s.n.* (4); *s.n.* (13); *s.n.* (15)
 Purpus, A.: 6710 (13); 6868' (13)
 Quintana, D. *et al.*: 34 (16)
 Raddi, G.: *s.n.* (21)
 Rechinger, K.H. & Rechinger, W.: 63988 (23a)
 Regnell, A.F.: II 322 (25a)
 Reichert, F.: *s.n.*, ex Herb. Hicken 33 and 34 (23a)
 Richter, E.: *s.n.* (25a)
 Riedel, L.: 90 (22); 90 (25a); 90a (21); 102 (22); 132 (22); *s.n.* (21); *s.n.* (22); *s.n.* (22); *s.n.* (see Excluded Names)
 Rodríguez, W.D. *et al.*: 3586 (*cf.* 22) 4118 (22); 4549 (21); 5026 (18); 5090 (16); 5438 (13); 5562 (16); 6031 (13)
 Rojas, A.: 3617 (10)
 Rojas, T.: 10447 (21)
 Ruiz López, H. & Pavón y Jimenez, J.A.: *s.n.* (15)
 Salino, A.: 1248 (21); 1844 (1); 2478 (1); 2858 (12); 6739 (1)
 Salino, A. *et al.*: 5482 (12); 9400 (12); 9462 (12); 11961 (25a)
 Santa, J. *et al.*: 1006 (4)
 Santiago, A.C.P. & Pirotbom-Silva, M.R.: 172 (21); 357 (21)
 Santiago, A.C.P. *et al.*: 152 (21)
 Santos, M.G.: 1370 (12)
 Scherer, C.: *s.n.* (25a)
 Schipp, W.A.: 258 (21)
 Schlim, L.: 329 (4).
 Schomburgk, R.: 1166 (7)
 Schultes, R.E. & Cabrera, I.: 12603 (8); 15616 (8)
 Schultz, A.R.H.: 3648 (1)
 Schwartsburd, P.B. & Araújo, J.A.P.: 2510 (21)

- Schwartsburd, P.B. & Bettega, H.T.: 1384 (25a); 1396 (25a)
 Schwartsburd, P.B. & Corazzini, A.C.: 1230 (25a); 1914 (25a); 1928 (25a); 1934 (25a); 1951 (25c); 1954 (25c); 1969 (25c); 1984 (25a); 1995 (25c)
 Schwartsburd, P.B. & Karstedt, F.: 2334 (25c)
 Schwartsburd, P.B. & Lima, A.M.X.: 1243 (25c)
 Schwartsburd, P.B. & Matos, F.B.: 231 (12); **1344** (1)
 Schwartsburd, P.B. & Pereira, J.B.S.: 1339 (25a); 2308 (12); **2309** (25c); **2310** (23b); 2316 (25c)
 Schwartsburd, P.B. & 'Seu Dejavu': 2337 (21)
 Schwartsburd, P.B. & Valente, T.: 1369 (25a)
 Schwartsburd, P.B. *et al.*: 1112 (25b); 1166 (25a); 1426 (25a); 1433 (25a); 1585 (25a); 1598 (25a); 1608 (25a); 1888 (25a); 2000 (23b); 2121 (25a); 2182 (25a); 2186 (25c); 2197 (23b); 2205 (25a); 2209 (25a); 2211 (25a); 2228 (25a); 2264 (1); 2279 (1); 2293 (25c); 2295 (25c); **2298** (17); 2317 (12); 2323 (23b); 2326 (25c); 2335 (21)
 Scolnik, R. *et al.*: 19 An 240 (18)
 Sehnem, A.: 1156 (25a); 2543 (25a); 2565 (25a); 4190 (25a); 5586 (25a); 5743 (25a); 6518 (25a)
 Sellow, (?): **s.n.** (see Excluded Names)
 Shazmann, (?): **s.n.** (23a)
 Sieber?: **Sieber Fl. Martin. no. 373** (21 – see Kohaut and Sikorn); **Sieber Fl. Mixta n. 347** (21)
 Sikorn: **836, Sieber Fl. Martin. no. 373** (21)
 Silva, A.T.: 376 (12); 530 (12)
 Silveira, N. & Guadagnim, M.: 3093 (25a)
 Silveira, N. *et al.*: 5128 (25a)
 Simpson, E.: **s.n.** (23a)
 Sintenis, P.: Pl. Portoricenses 2028 (21); Pl. Portoricenses 2058 (21)
 Skottsberg, C.: 302 (23a)
 Skottsberg, C. & Skottsberg, I.: 120 (23a); 439 (23a); 587 (23a); 1123 (19)
 Skutch, A.F.: **2975** (22)
 Small, J.K. & Matthaus, P.: 11638 (21)
 Small, J.K. & Wherry, E.T.: 12637 (21)
 Smith, A.R. *et al.*: **2361** (14)
 Smith, D.N. & Smith, J.F.: 13103 (13)
 Smith, H.H.: 1022 (28); 2217 (16); 2586 (26)
 Sodiro, A.L.: 13/2 (4); 24/1 (26); **s.n.** (4); **s.n.** (16); **s.n.** (26)
 Solomon, J.C.: 16418 (4)
 Sota, E.R. de la: 6031 (19)
 Sota, E.R. de la *et al.*: 6146 (25b)
 Sparre, B.: 14 (23a)
 Sparre, (B?) & Smith, (?): 280 (23a)
 Sperling, C.R. *et al.*: 5912 (21)
 Spruce, R.: **2119** (8); 5704 (26); "5716" (26); 5287 (16); 5349 (16 *p.p.*, 21 *p.p.*)
 Steinbach, J.: 9302 (22)
 Steinbach, R.F.: 477 (8)

- Steindachner, F.: *s.n.* (23a)
 Stergios, B.: 17460 (16)
 Steyermark, J.A. *et al.*: 101758 (8); 124843 (*aff.* 22; probably *Hypolepis tenerrima*)
 Steyermark, J.A. & Stoddart, A.: 118009 (16)
 Stübel, A.: 70 (15); 94 (15); 129 (15); 315 (15); 317b (15); 334 (4); 341 (4); 342 (4); 346 (4); **796** (26); 1071 (4)
 Sundue, M. *et al.*: 1690 (4)
 Swenson, U.: 379 (23a)
 Tamandaré T. Jr., F. & Brade, A.C.: “786” (25a); ‘839’ or ‘1837’ (23b); 6501 (23b; see also Names of Uncertain Application); 6502 (25a)
 Tate, G.H.H.: 461 (27); 498 (13); 1157 (21)
 Thurn, E.F. *im.*: **161** (9); 303 (27)
 Tonduz, A.: 10696 (14); 12870 (21)
 Triana, J.: 31 (28); *s.n.* (6); *s.n.* (28)
 Triana, J.?: ‘618’ (28)
 Triana-M., L.A.: 133 (18)
 Trujillo, B.: 16492 (11)
 Tryon, R.M. & Tryon, A.F.: 5240 (22); 6129 (2); 6682 (23b); 6683 (23b); 6916 (25a)
 Tuerckheim, H. von: 8346 (21)
 Tuomisto, H. *et al.*: 5227 (8)
 Tussac, (?) de: *s.n.* (26)
 Underwood, L.M.: 3158 (26)
 Varetti, C.V. de: 424 (19)
 Venturi, S.: 4034 (19); 9858 (19)
 Verleysen, J.: 201 (20)
 Vieira Filho, J.: 23 (25a)
 Vivas, Y. *et al.*: 3104 (28)
 Wacket, L.: *s.n.*, Rosenst. Filic. Austrobras. Exsic. 183 (22)
 Wasum, R.: 1438 (25a)
 Watt, M.D.: 23 (13)
 Weldt, E. & Rodríguez, R.: 826/121 (23a)
 Wercklé, C.R.: “1905” (4)
 Werckle, I.: *s.n.* (13)
 Werdermann, E.: Pl. Chilensis n. 304 (23a)
 Werff, H.H. van der: **955** (5); 2118 (5); 2348 (5)
 Werff, H.H. van der & González, A.: 5238 (22)
 Werff, H.H. van der & Palacios, W.: 10612 (4)
 Werff, H.H. van der & Rivero, R.: 7852 (28)
 Werff, H.H. van der & Wingfield, R.: 3040 (22)
 Widgren, J.F.: 1139½ (25a)
 Wiggins, I.L.: **10386** (3)
 Wiles: *s.n.* (13)
 Williams, L.L. & Alston, A.H.G.: 190 (26)
 Wilson, N.: **555** (13); *s.n.* (13)

Wood, Capt. J.: *s.n.* (5)

Wood, J.R.I.: 12329 (21); 13672 (22); 15939 (19)

Wood, J.R.I. *et al.*: 19800 (13)

Yañez, A. & Marquez, G.: 101 (25a)

Zöllner, O.: 4779 (23a)

Øllgaard, B. & Balsev, H.: 8155 (3); 8374 (15); 9383 (4)

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**A Taxonomic Revision of the South American Species of *Hypolepis*
(Dennstaedtiaceae), Part II**

Pedro Bond Schwartsburd and Jefferson Prado

1

COVER CAPTION: Photo of *Hypolepis acantha* Schwartsb. taken by J. Prado on 26 February 2008, in Bertioga, São Paulo, Brazil